205290 T6T4H00T

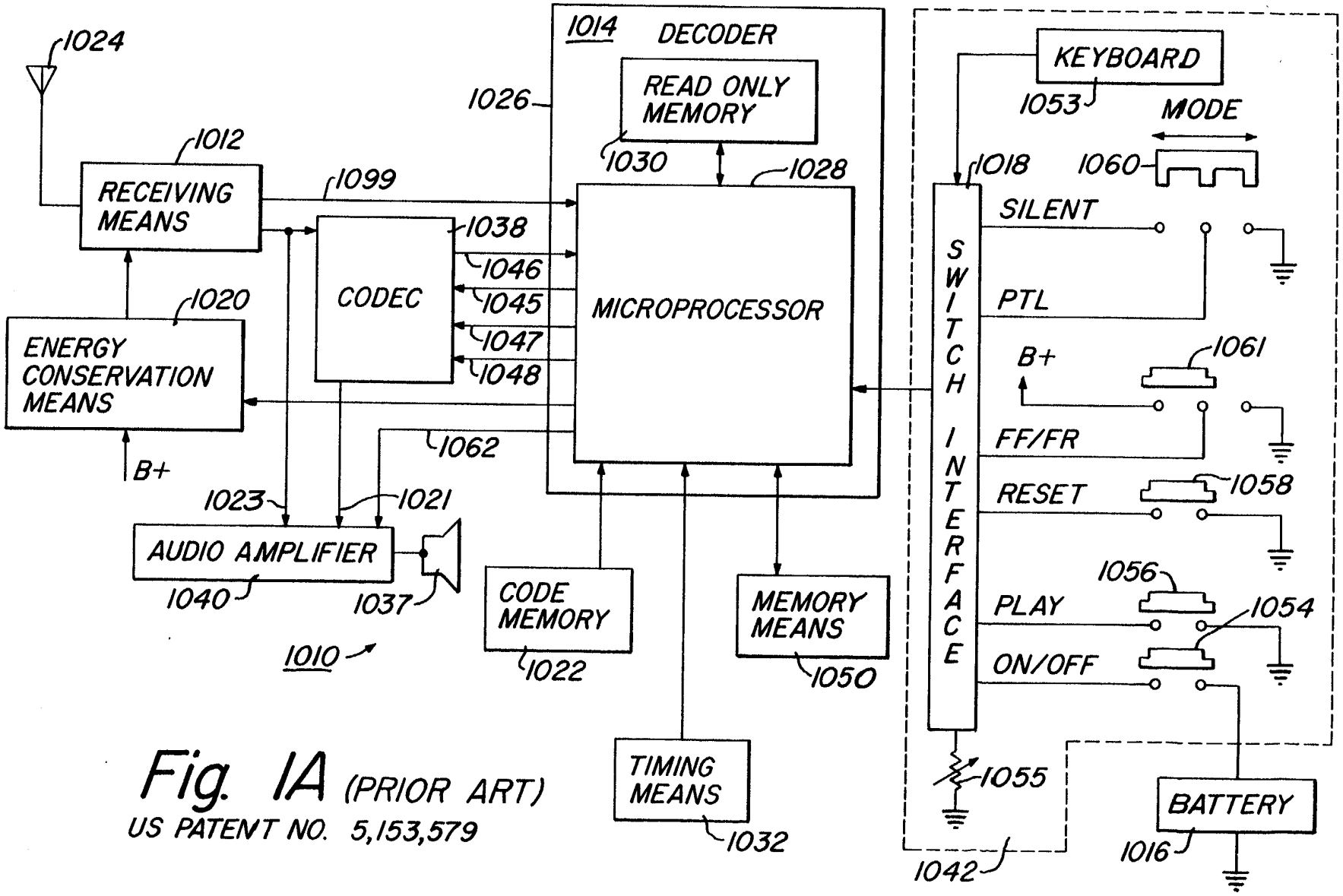


Fig. 1A (PRIOR ART)

US PATENT NO. 5,153,579

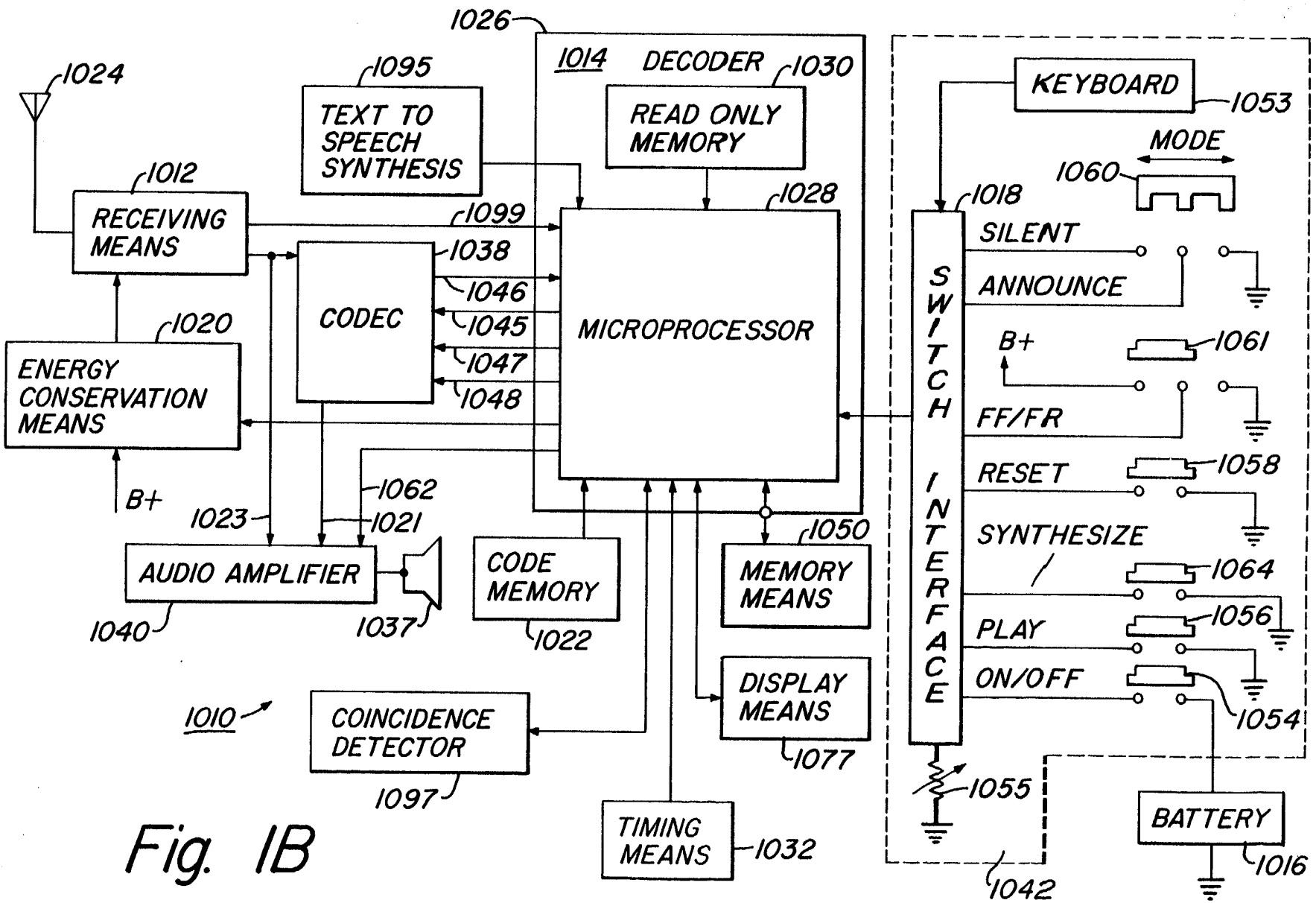

1026
1014 DECODER
1030
1095
TEXT TO SPEECH SYNTHESIS
READ ONLY MEMORY
1024
1012
RECEIVING MEANS
1099
1028
1038
CODEC
1046
1045
1047
1048
MICROPROCESSOR
1020
ENERGY CONSERVATION MEANS
B+
1062
1023
1021
AUDIO AMPLIFIER
1040
1037
CODE MEMORY
1022
1050
MEMORY MEANS
1010
COINCIDENCE DETECTOR
1097
DISPLAY MEANS
1077
TIMING MEANS
1032
KEYBOARD
1053
MODE
1060
1018
SILENT
ANNOUNCE
B+
1061
FF/FR
RESET
1058
SYNTHESIZE
1064
PLAY
1056
ON/OFF
1054
SWITCH INTERFACE
1055
BATTERY
1016
1042

Fig. 1B

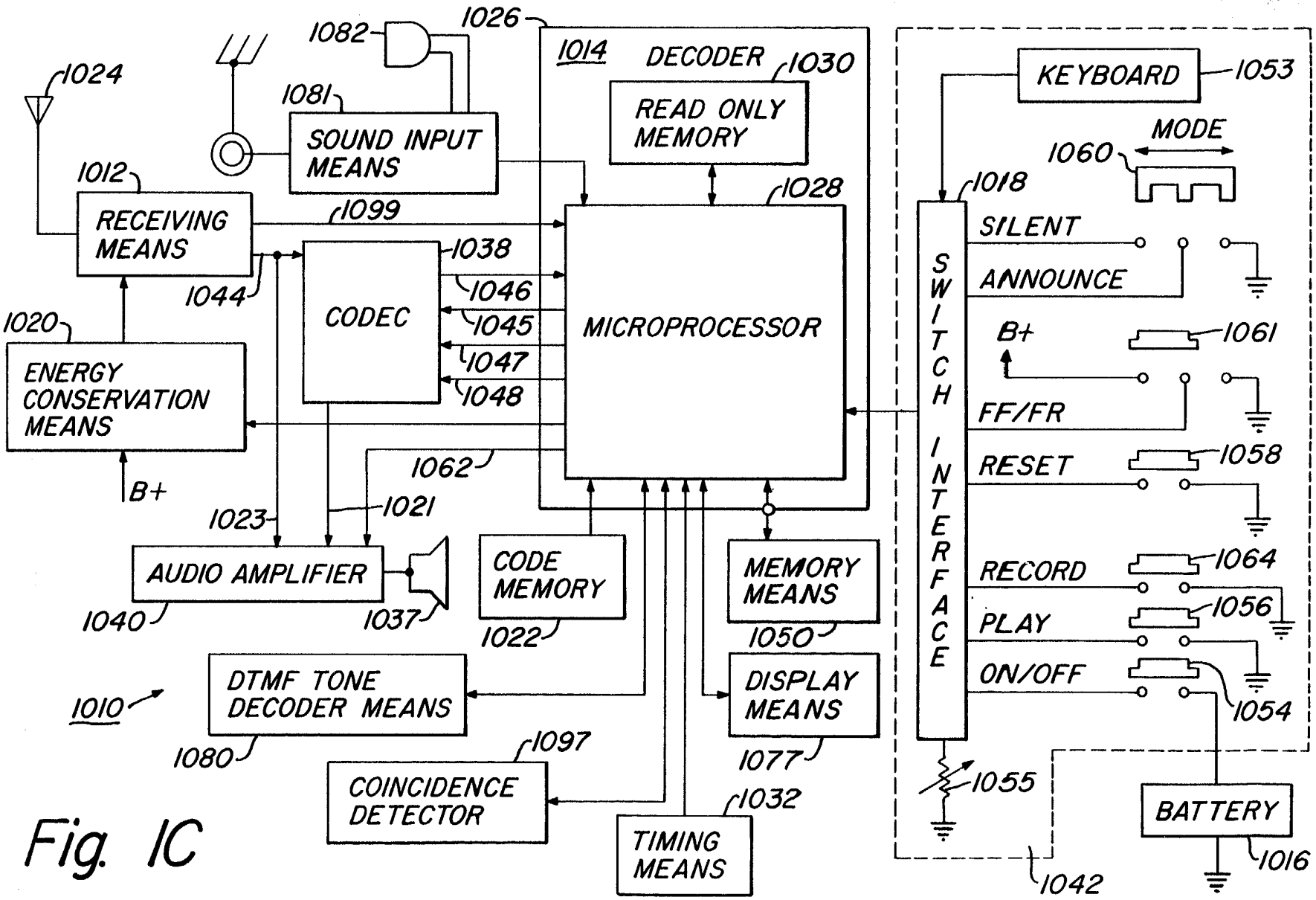

1026
1082
1014
DECODER
1030
1024
1081
READ ONLY MEMORY
SOUND INPUT MEANS
1012
1028
RECEIVING MEANS
1099
1038
1044
CODEC
1046
1045
1047
1048
MICROPROCESSOR
1020
ENERGY CONSERVATION MEANS
B+
1062
1023
1021
AUDIO AMPLIFIER
1040
1037
CODE MEMORY
1022
MEMORY MEANS
1050
1010
DTMF TONE DECODER MEANS
1080
DISPLAY MEANS
1077
1097
COINCIDENCE DETECTOR
TIMING MEANS
1032
KEYBOARD
1053
MODE
1060
1018
SILENT
ANNOUNCE
B+
1061
FF/FR
RESET
1058
RECORD
1064
PLAY
1056
ON/OFF
1054
SWITCH INTERFACE
1055
BATTERY
1016
1042

Fig. 1C

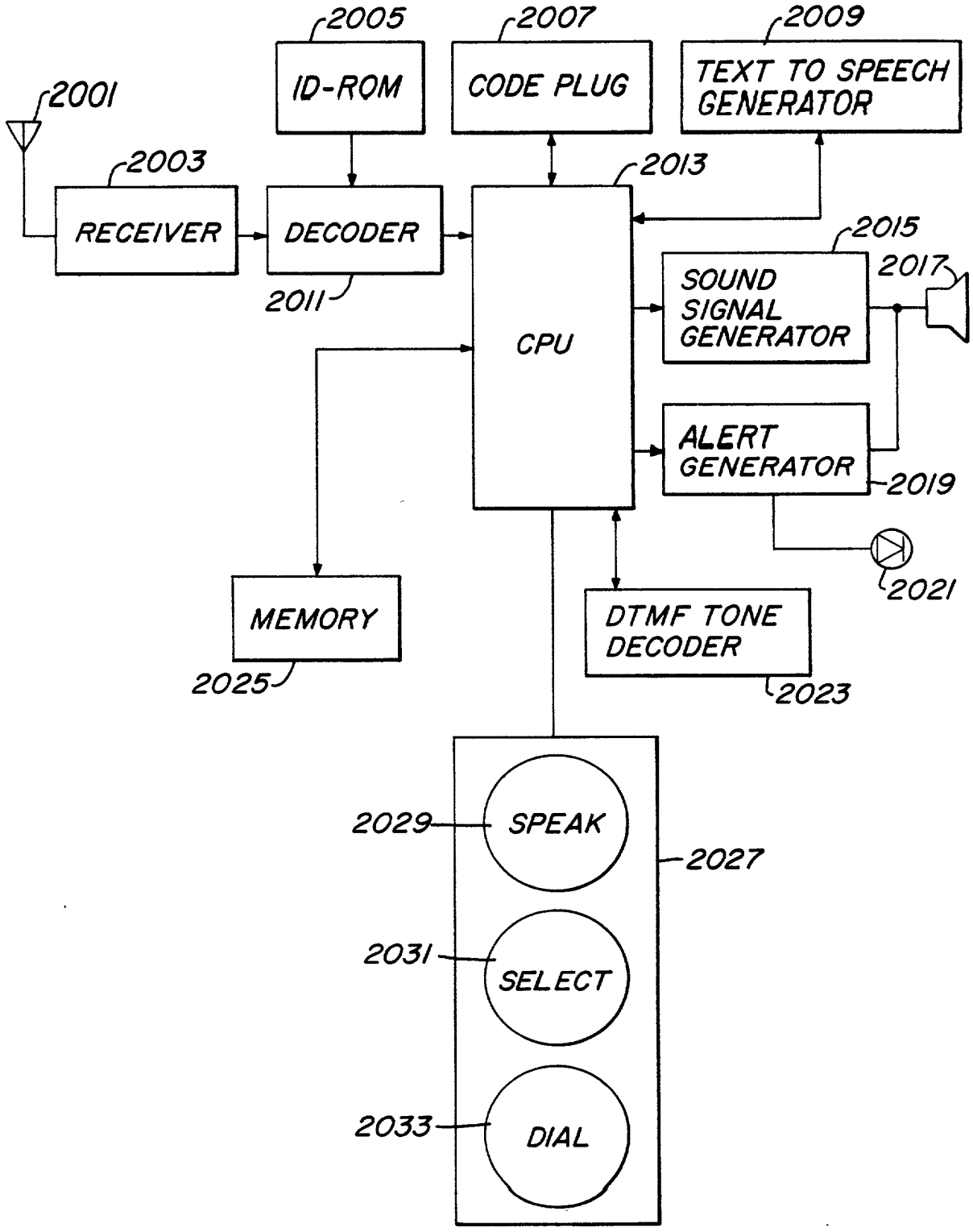

2001
2003
RECEIVER
2005
ID-ROM
2007
CODE PLUG
2009
TEXT TO SPEECH GENERATOR
DECODER
2011
2013
CPU
2015
SOUND SIGNAL GENERATOR
2017
ALERT GENERATOR
2019
2021
MEMORY
2025
DTMF TONE DECODER
2023
2027
2029
SPEAK
2031
SELECT
2033
DIAL

Fig. ID

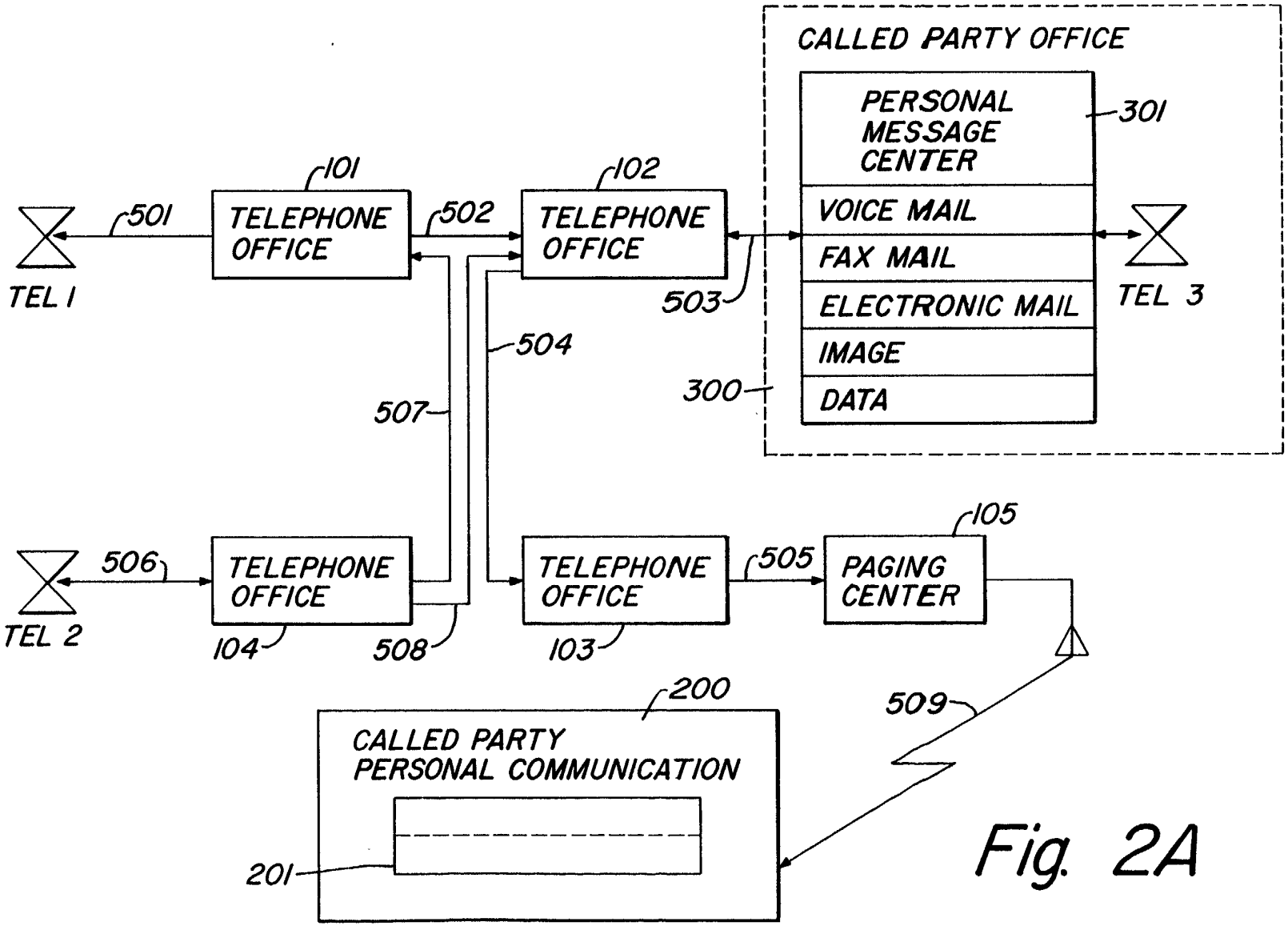

CALLED PARTY OFFICE
PERSONAL MESSAGE CENTER
301
VOICE MAIL
FAX MAIL
ELECTRONIC MAIL
IMAGE
DATA
300
TEL 1
501
101
TELEPHONE OFFICE
502
102
TELEPHONE OFFICE
503
TEL 3
504
507
TEL 2
506
TELEPHONE OFFICE
104
508
TELEPHONE OFFICE
103
505
105
PAGING CENTER
509
200
CALLED PARTY PERSONAL COMMUNICATION
201

Fig. 2A

2052290 T6TZ400T

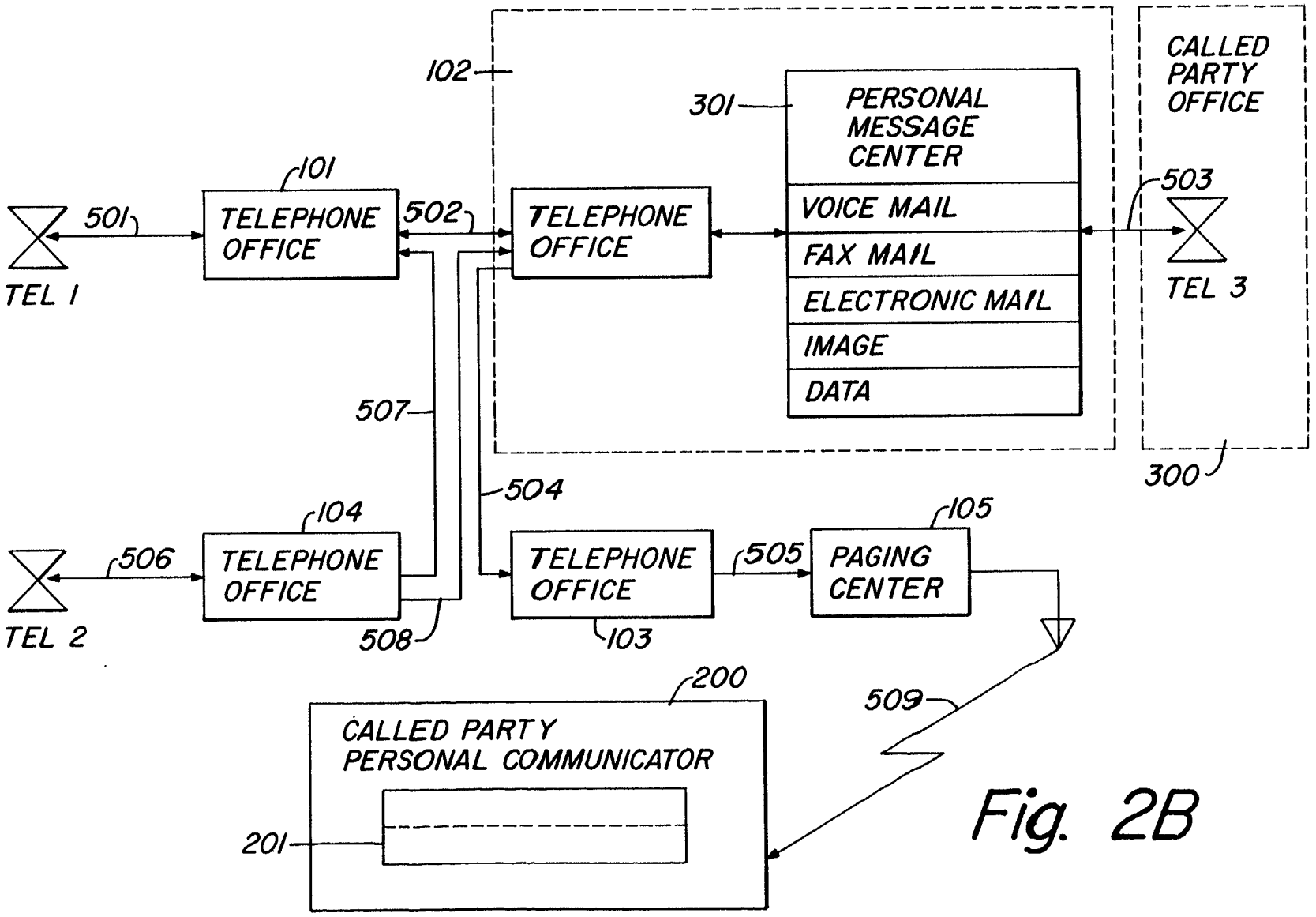


Fig. 2B

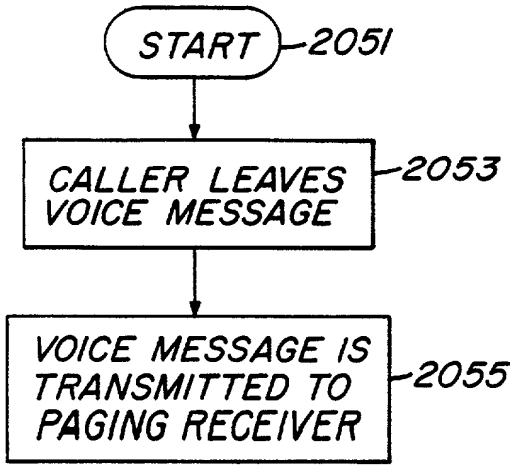


Fig. 3A
(PRIOR ART)

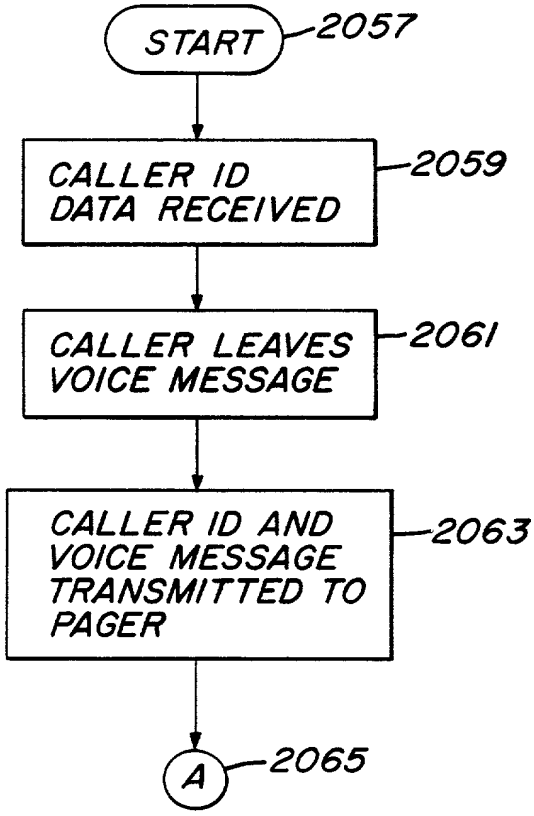


Fig. 3B

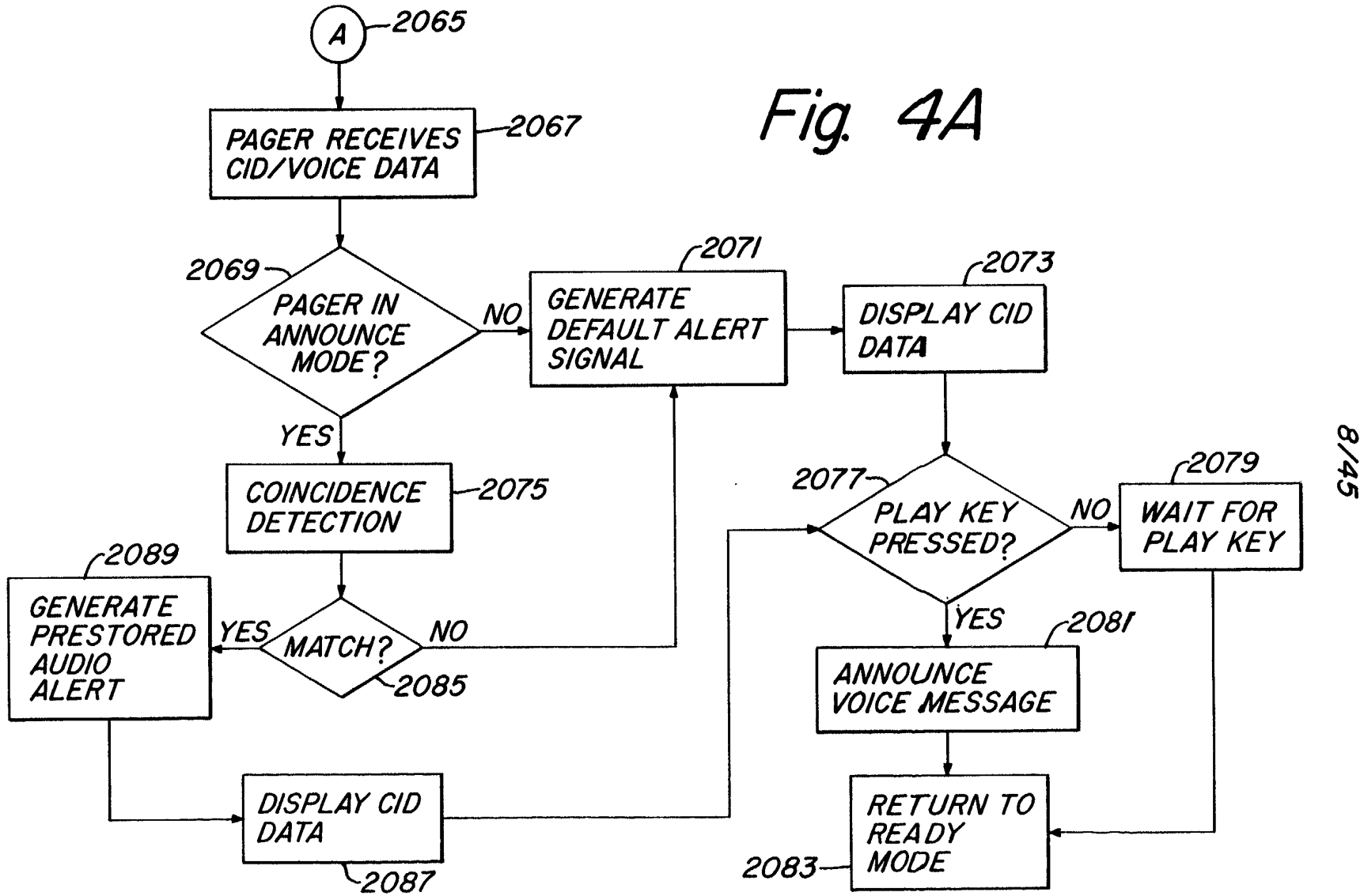
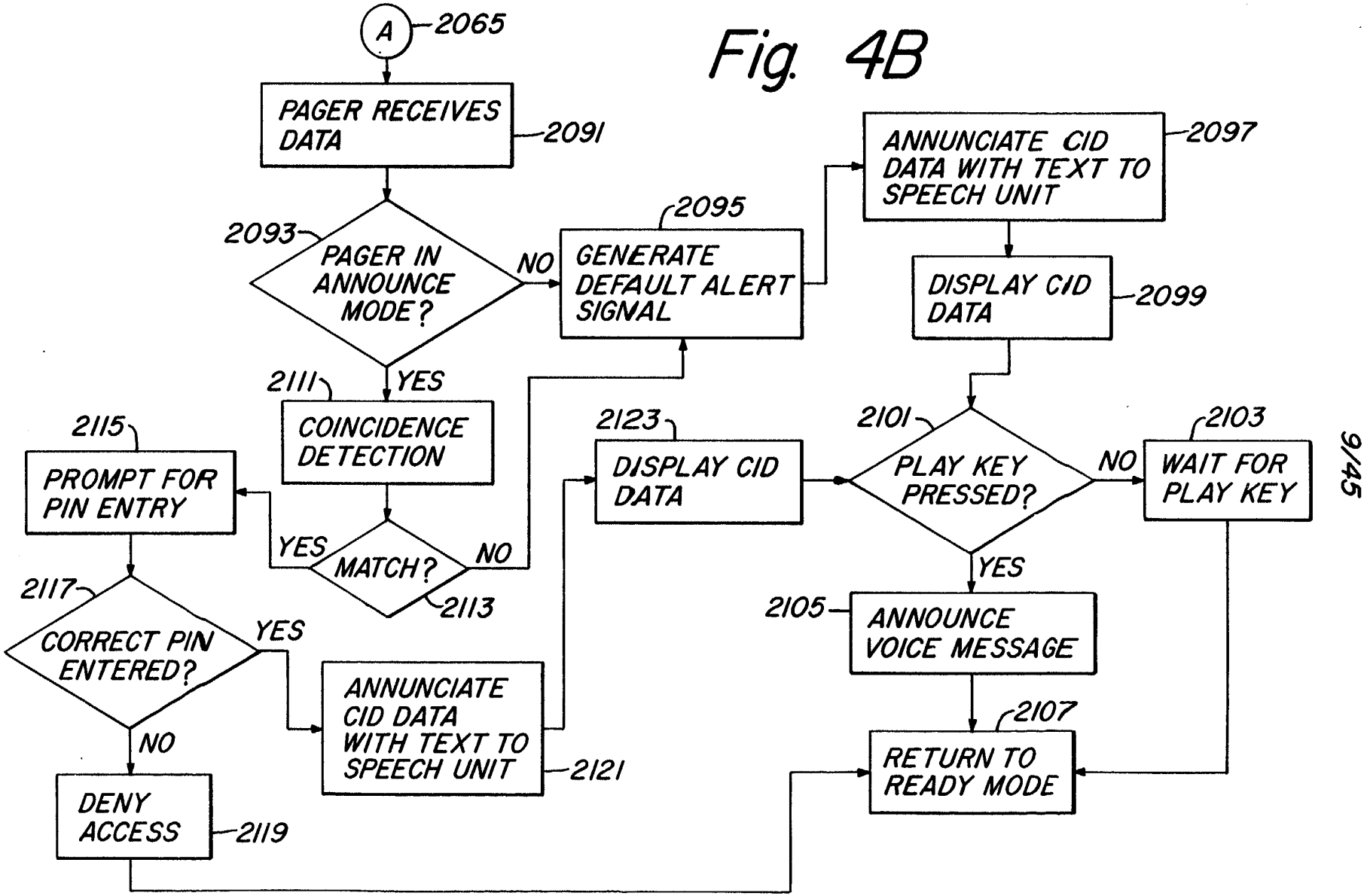

A
2065
PAGER RECEIVES CID/VOICE DATA
2067
2069
PAGER IN ANNOUNCE MODE?
NO
2071
GENERATE DEFAULT ALERT SIGNAL
2073
DISPLAY CID DATA
YES
COINCIDENCE DETECTION
2075
2077
PLAY KEY PRESSED?
NO
2079
WAIT FOR PLAY KEY
2089
GENERATE PRESTORED AUDIO ALERT
YES
MATCH?
NO
2085
YES
2081
ANNOUNCE VOICE MESSAGE
DISPLAY CID DATA
2087
RETURN TO READY MODE
2083

Fig. 4A

Fig. 4B


A
2065
PAGER RECEIVES DATA
2091
2093
PAGER IN ANNOUNCE MODE?
NO
2095
GENERATE DEFAULT ALERT SIGNAL
ANNUNCIATE CID DATA WITH TEXT TO SPEECH UNIT
2097
DISPLAY CID DATA
2099
YES
2111
COINCIDENCE DETECTION
2115
PROMPT FOR PIN ENTRY
YES
MATCH?
NO
2113
2123
DISPLAY CID DATA
2101
PLAY KEY PRESSED?
NO
2103
WAIT FOR PLAY KEY
YES
2105
ANNOUNCE VOICE MESSAGE
2107
RETURN TO READY MODE
2117
CORRECT PIN ENTERED?
YES
NO
ANNUNCIATE CID DATA WITH TEXT TO SPEECH UNIT
2121
DENY ACCESS
2119

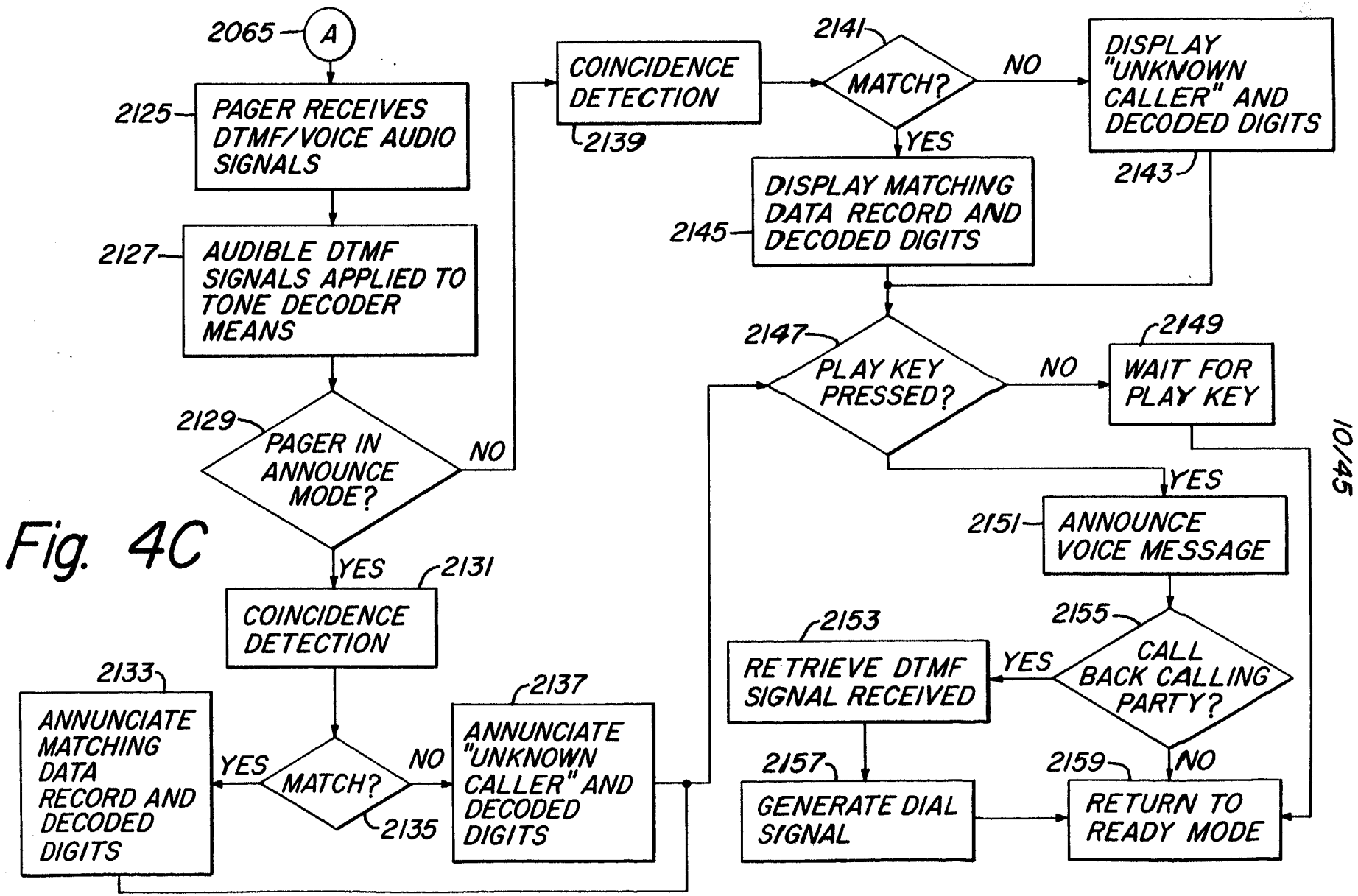

2065
A
2125
PAGER RECEIVES DTMF/VOICE AUDIO SIGNALS
2127
AUDIBLE DTMF SIGNALS APPLIED TO TONE DECODER MEANS
2129
PAGER IN ANNOUNCE MODE?
NO
YES
2131
COINCIDENCE DETECTION
2133
ANNUNCIATE MATCHING DATA RECORD AND DECODED DIGITS
YES
MATCH?
NO
2135
2137
ANNUNCIATE "UNKNOWN CALLER" AND DECODED DIGITS
COINCIDENCE DETECTION
2139
2141
MATCH?
NO
YES
DISPLAY "UNKNOWN CALLER" AND DECODED DIGITS
2143
DISPLAY MATCHING DATA RECORD AND DECODED DIGITS
2145
2147
PLAY KEY PRESSED?
NO
2149
WAIT FOR PLAY KEY
YES
2151
ANNOUNCE VOICE MESSAGE
2153
RETRIEVE DTMF SIGNAL RECEIVED
YES
2155
CALL BACK CALLING PARTY?
NO
2157
GENERATE DIAL SIGNAL
2159
RETURN TO READY MODE

Fig. 4C

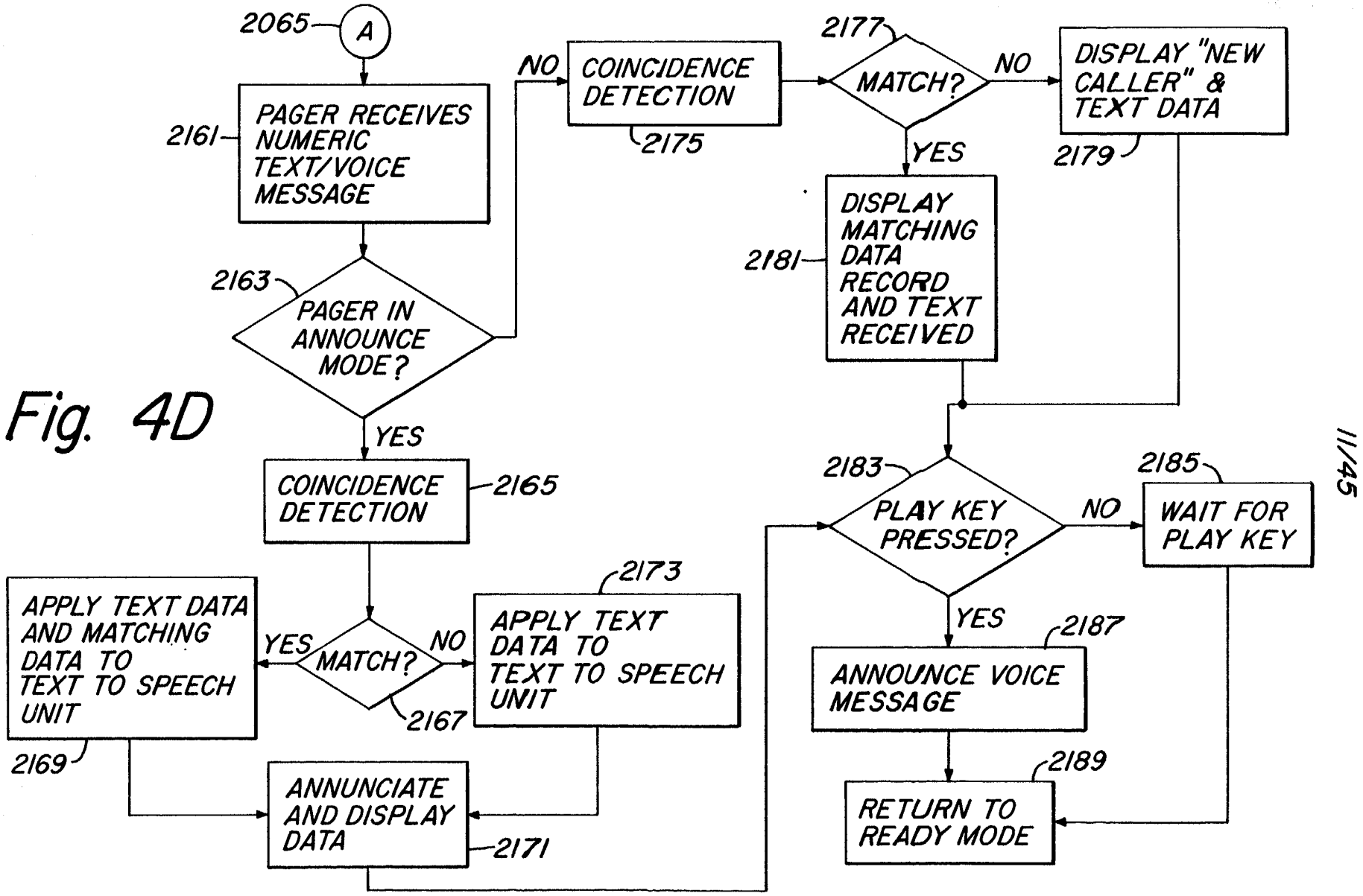
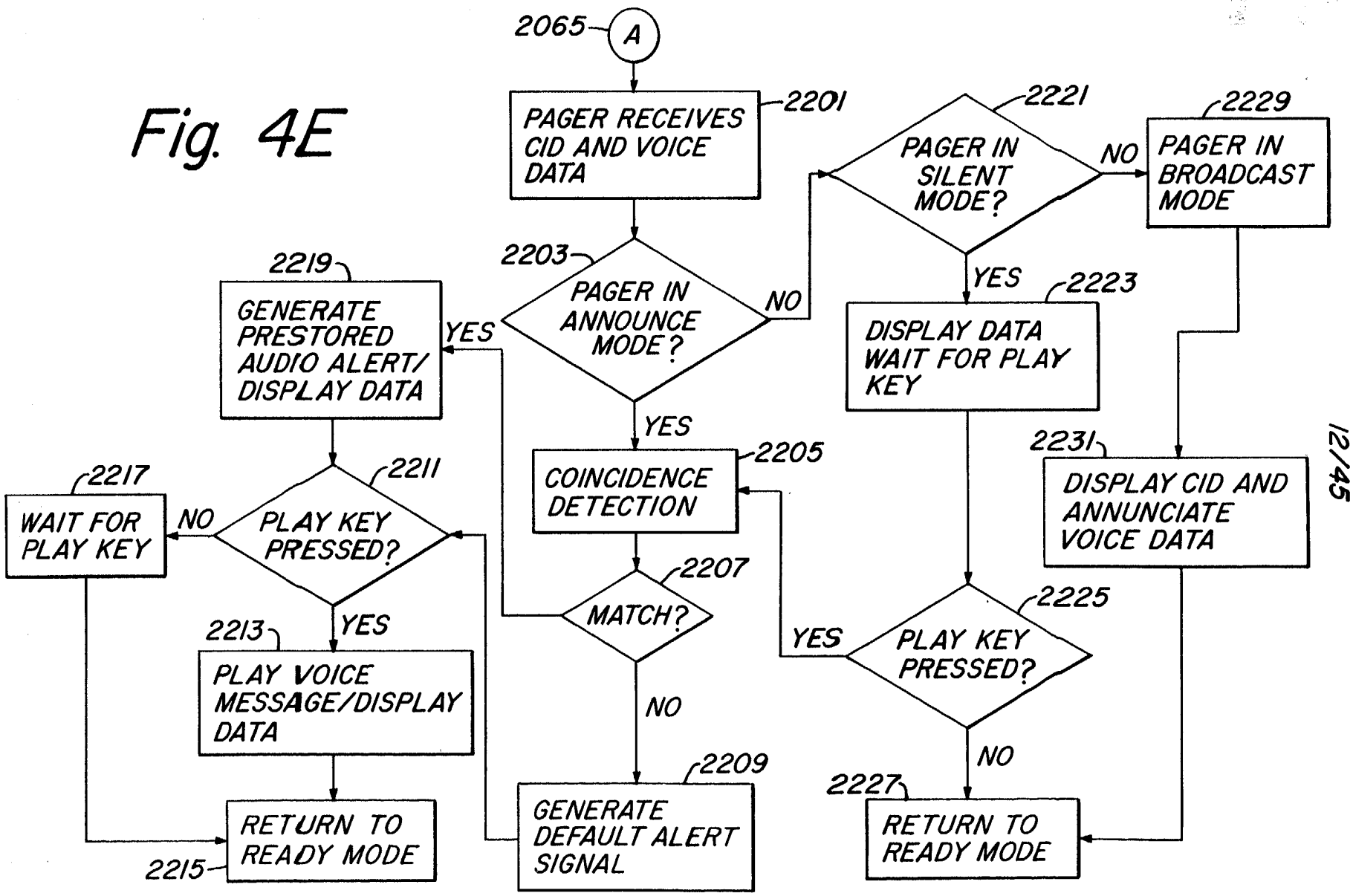

2065
A
2161
PAGER RECEIVES NUMERIC TEXT/VOICE MESSAGE
2163
PAGER IN ANNOUNCE MODE?
NO
YES
COINCIDENCE DETECTION
2165
APPLY TEXT DATA AND MATCHING DATA TO TEXT TO SPEECH UNIT
2169
YES
MATCH?
NO
2167
APPLY TEXT DATA TO TEXT TO SPEECH UNIT
2173
ANNUNCIATE AND DISPLAY DATA
2171
NO
COINCIDENCE DETECTION
2175
2177
MATCH?
NO
YES
DISPLAY "NEW CALLER" & TEXT DATA
2179
DISPLAY MATCHING DATA RECORD AND TEXT RECEIVED
2181
2183
PLAY KEY PRESSED?
NO
YES
2185
WAIT FOR PLAY KEY
2187
ANNOUNCE VOICE MESSAGE
2189
RETURN TO READY MODE

Fig. 4D

Fig. 4E


2065
A
2201
PAGER RECEIVES CID AND VOICE DATA
2203
PAGER IN ANNOUNCE MODE?
NO
YES
2219
GENERATE PRESTORED AUDIO ALERT/ DISPLAY DATA
2211
PLAY KEY PRESSED?
NO
2217
WAIT FOR PLAY KEY
YES
2213
PLAY VOICE MESSAGE/DISPLAY DATA
2215
RETURN TO READY MODE
YES
2205
COINCIDENCE DETECTION
2207
MATCH?
NO
2209
GENERATE DEFAULT ALERT SIGNAL
2221
PAGER IN SILENT MODE?
NO
2229
PAGER IN BROADCAST MODE
YES
2223
DISPLAY DATA WAIT FOR PLAY KEY
2231
DISPLAY CID AND ANNUNCIATE VOICE DATA
YES
2225
PLAY KEY PRESSED?
NO
2227
RETURN TO READY MODE

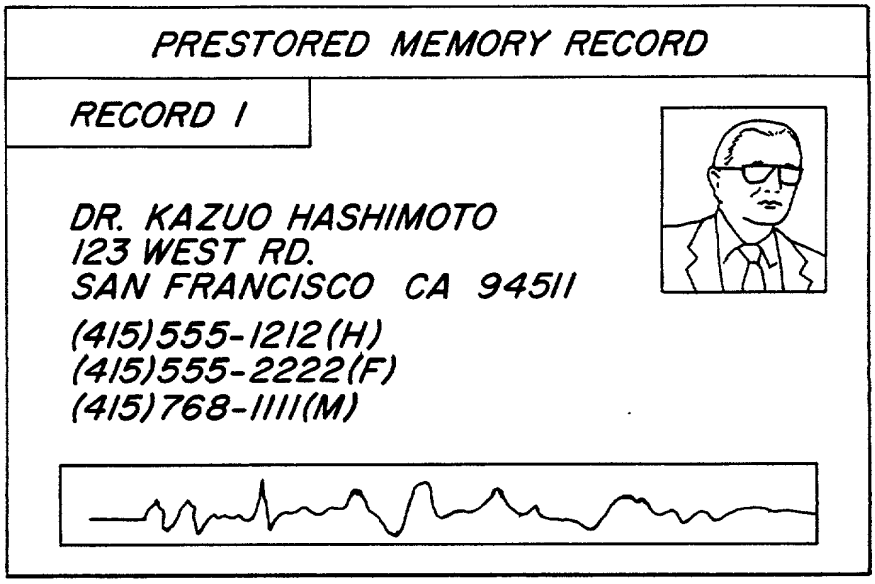

PRESTORED MEMORY RECORD
RECORD 1
DR. KAZUO HASHIMOTO
123 WEST RD.
SAN FRANCISCO CA 94511
(415)555-1212(H)
(415)555-2222(F)
(415)768-1111(M)

Fig. 5A

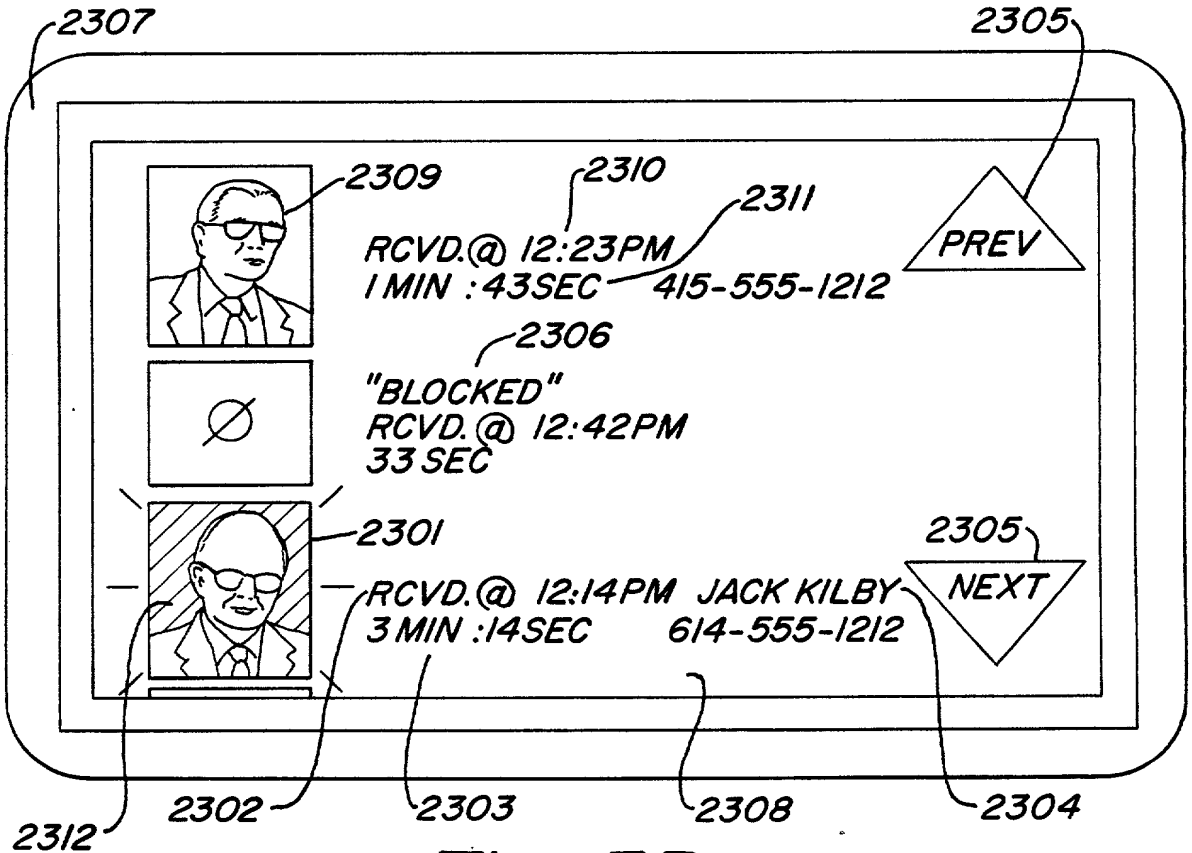

2307
2305
2309
2310
2311
RCVD.@ 12:23PM
1 MIN :43SEC
415-555-1212
PREV
2306
"BLOCKED"
RCVD.@ 12:42PM
33 SEC
2301
2305
NEXT
RCVD.@ 12:14PM JACK KILBY
3 MIN :14SEC
614-555-1212
2312
2302
2303
2308
2304

Fig. 5B

CALLER ID MEMORY ADDRESS REGISTER				
CALL	CALLING NUMBER	CALLING NAME	TIME/DATE	VOICE DATA
1	415-555-1212	KAZUO HASHIMOTO	12:23 PM 3/13/93	
2	BLOCKED	BLOCKED	12:42 PM 3/13/93	BLOCKED
3	619-555-1212	JACK KILBY	02:14 PM 3/13/93	
•				•
•				•
•				•
•				•
•				•
•				•
•				•
•				•
X	817-555-1212	THOMAS EDISON	01:33 AM 3/14/93	

Fig. 5C

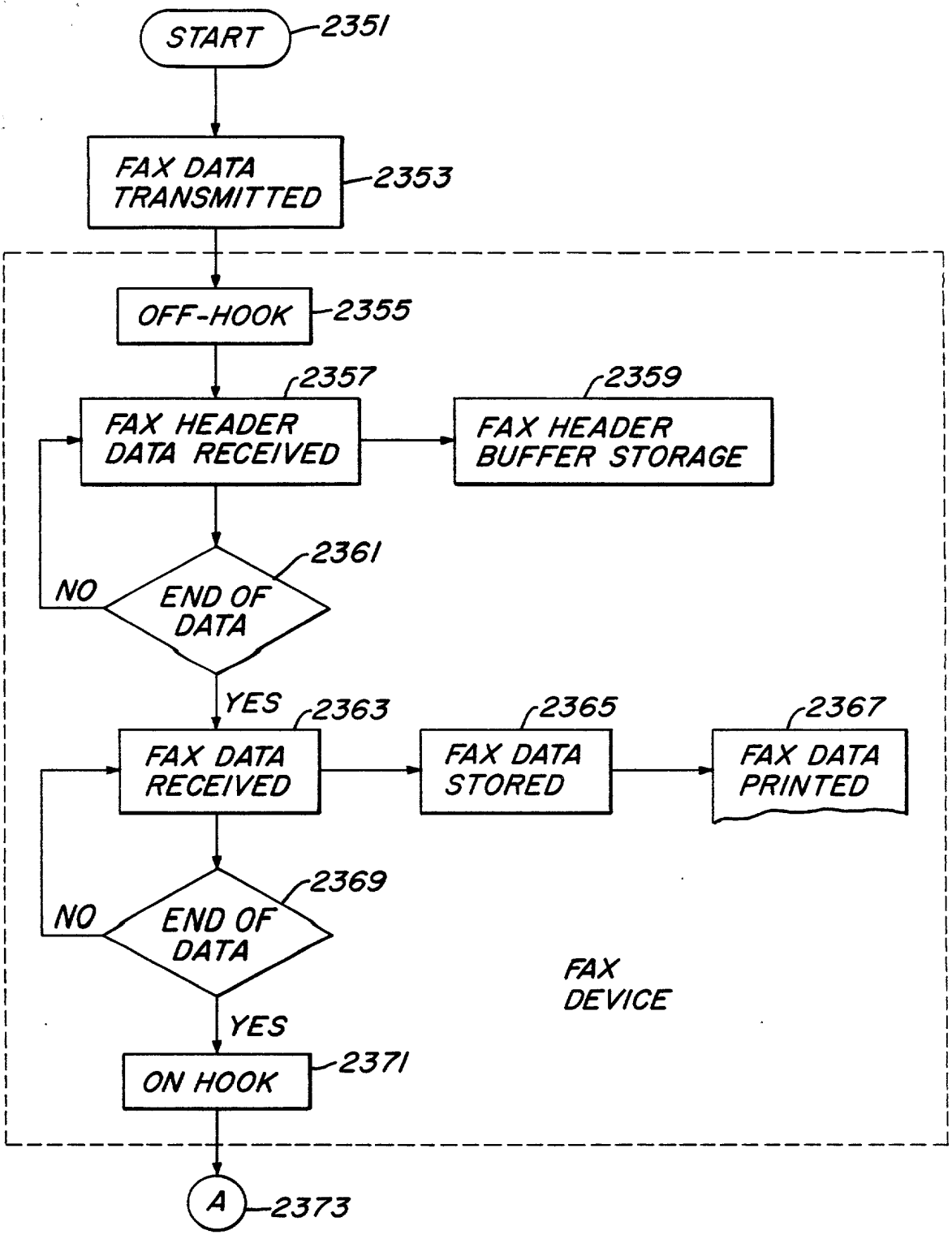

START
2351
FAX DATA TRANSMITTED
2353
OFF-HOOK
2355
2357
FAX HEADER DATA RECEIVED
2359
FAX HEADER BUFFER STORAGE
2361
NO
END OF DATA
YES
2363
FAX DATA RECEIVED
2365
FAX DATA STORED
2367
FAX DATA PRINTED
2369
NO
END OF DATA
YES
FAX DEVICE
ON HOOK
2371
A
2373

Fig. 6A

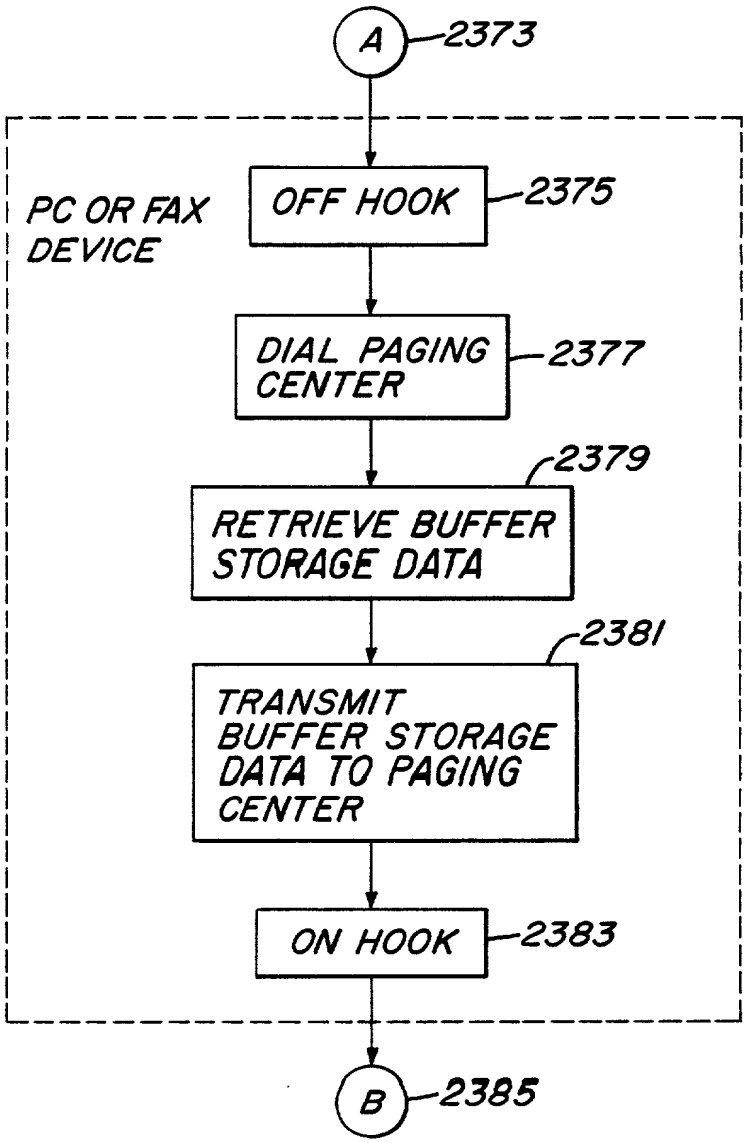

A
2373
PC OR FAX DEVICE
OFF HOOK
2375
DIAL PAGING CENTER
2377
2379
RETRIEVE BUFFER STORAGE DATA
2381
TRANSMIT BUFFER STORAGE DATA TO PAGING CENTER
ON HOOK
2383
B
2385

Fig. 6B

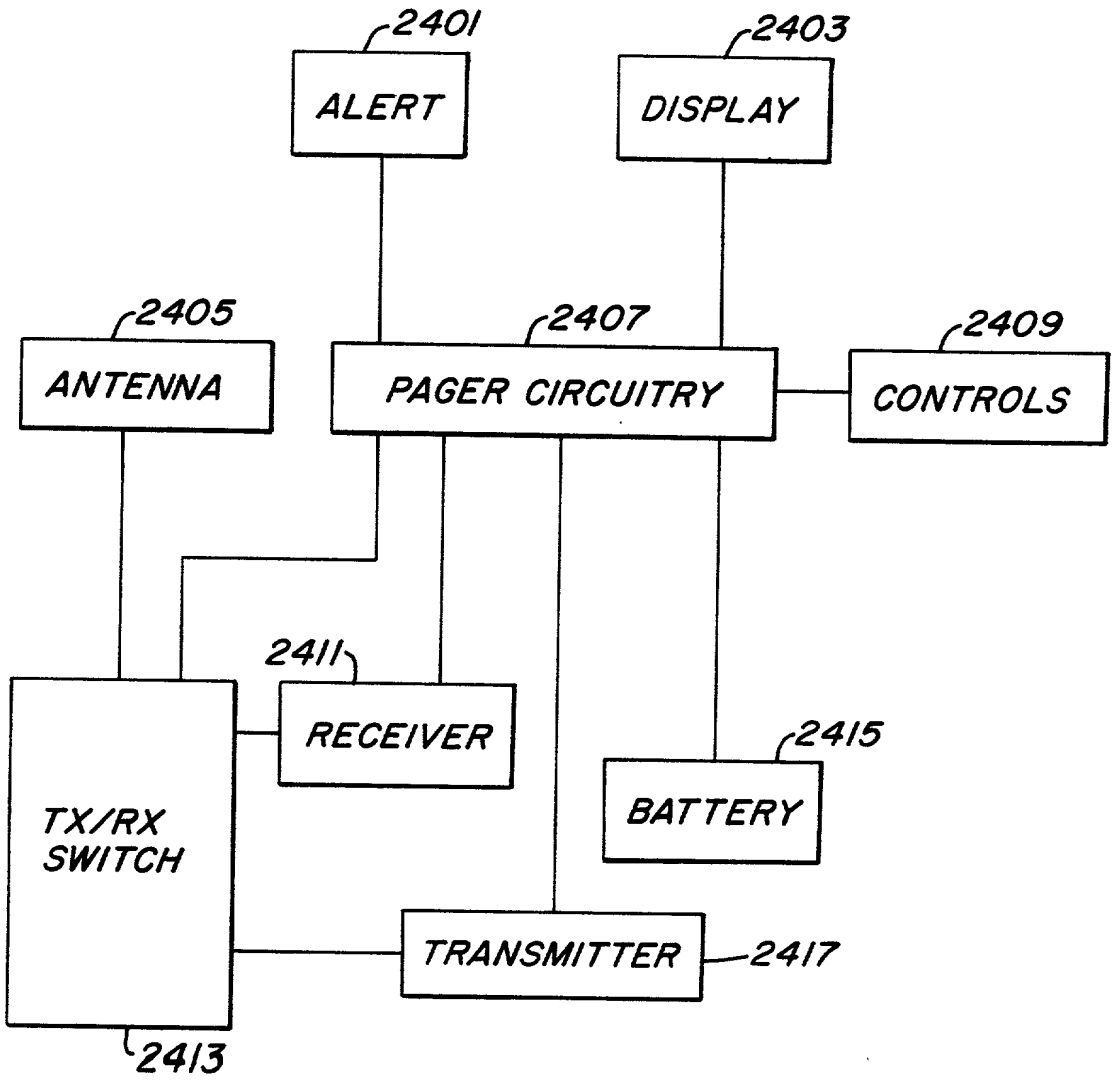

2401
ALERT
2403
DISPLAY
2405
ANTENNA
2407
PAGER CIRCUITRY
2409
CONTROLS
2411
RECEIVER
2415
BATTERY
TX/RX
SWITCH
TRANSMITTER
2417
2413

Fig. 7A

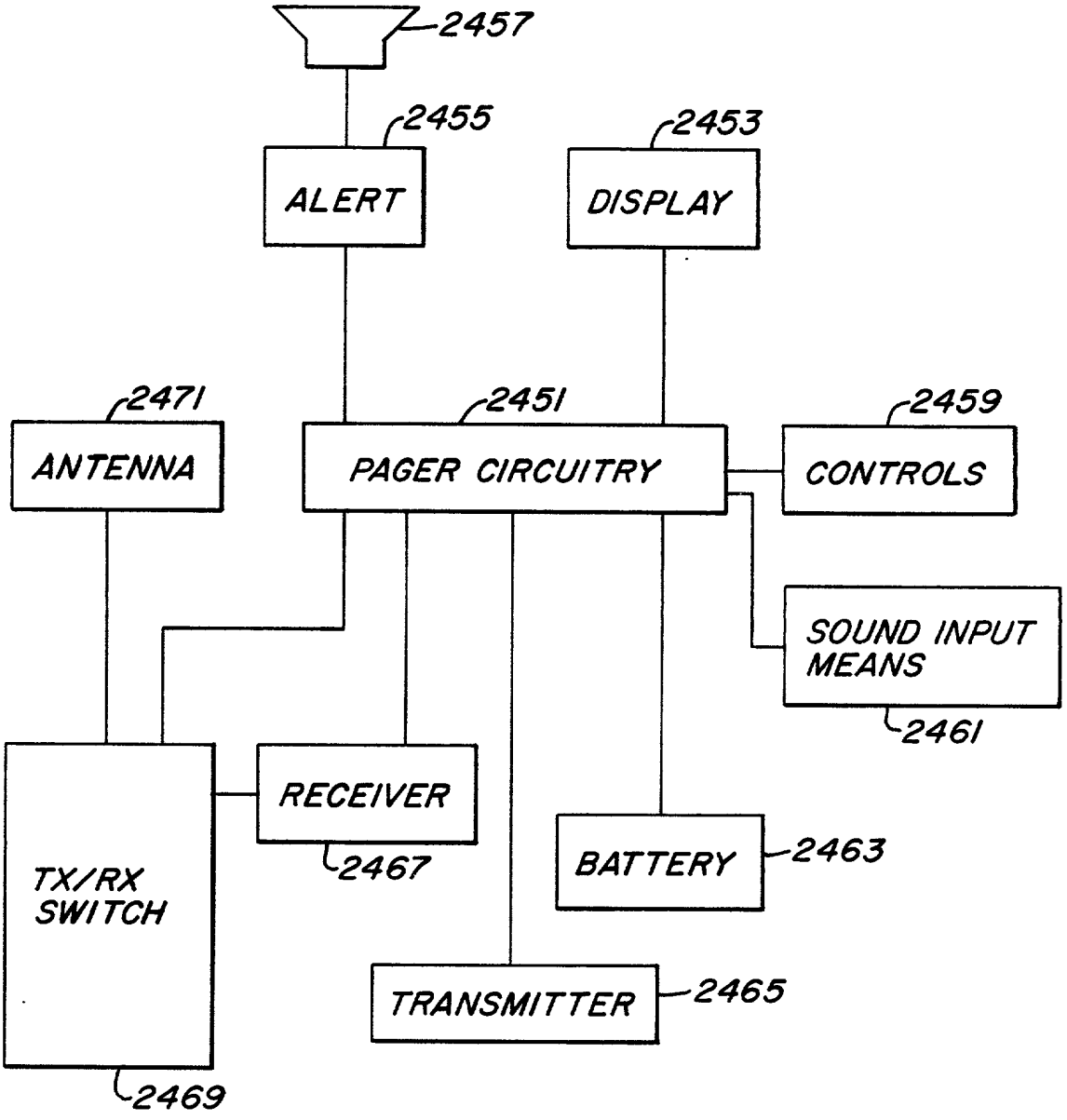

2457
2455
ALERT
2453
DISPLAY
2471
ANTENNA
2451
PAGER CIRCUITRY
2459
CONTROLS
SOUND INPUT MEANS
2461
RECEIVER
2467
TX/RX SWITCH
2469
BATTERY
2463
TRANSMITTER
2465

Fig. 7B

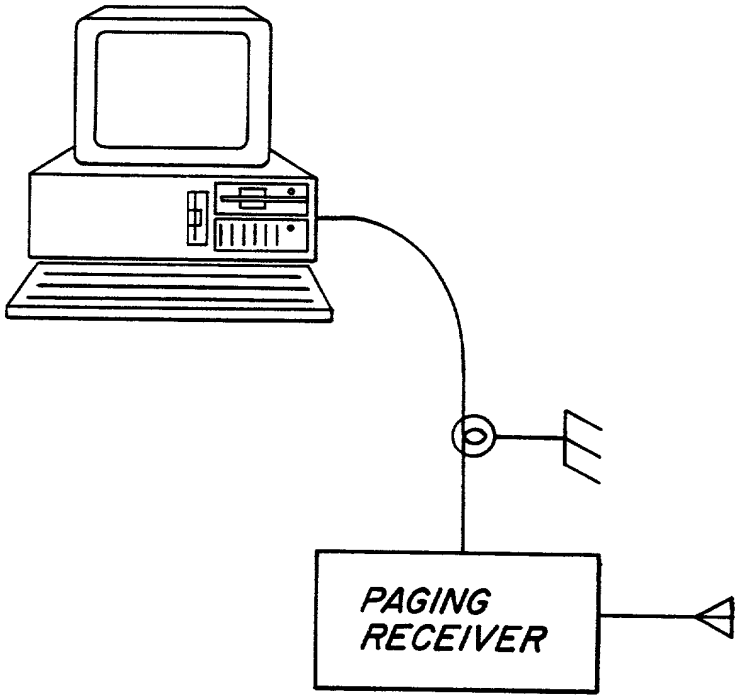


Fig. 8A

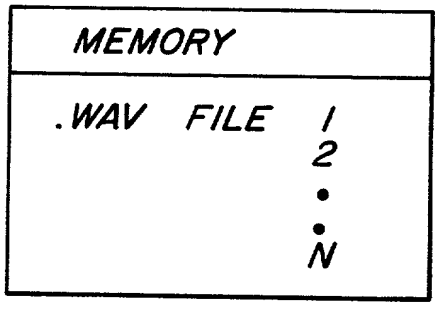


Fig. 8B

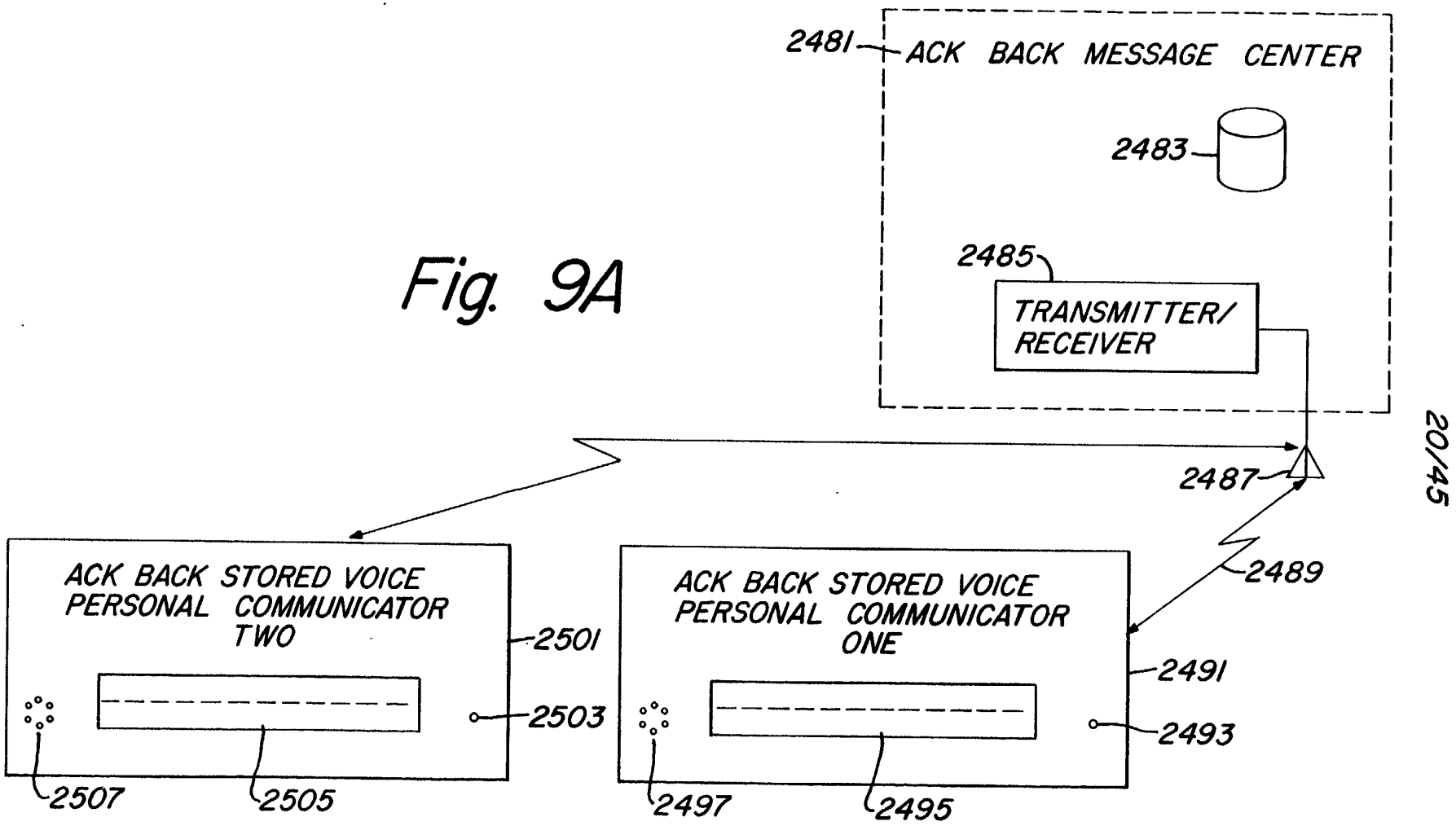

2481
ACK BACK MESSAGE CENTER
2483
2485
TRANSMITTER/
RECEIVER
2487
2489
ACK BACK STORED VOICE
PERSONAL COMMUNICATOR
TWO
2501
2503
2507
2505
ACK BACK STORED VOICE
PERSONAL COMMUNICATOR
ONE
2491
2493
2497
2495

Fig. 9A

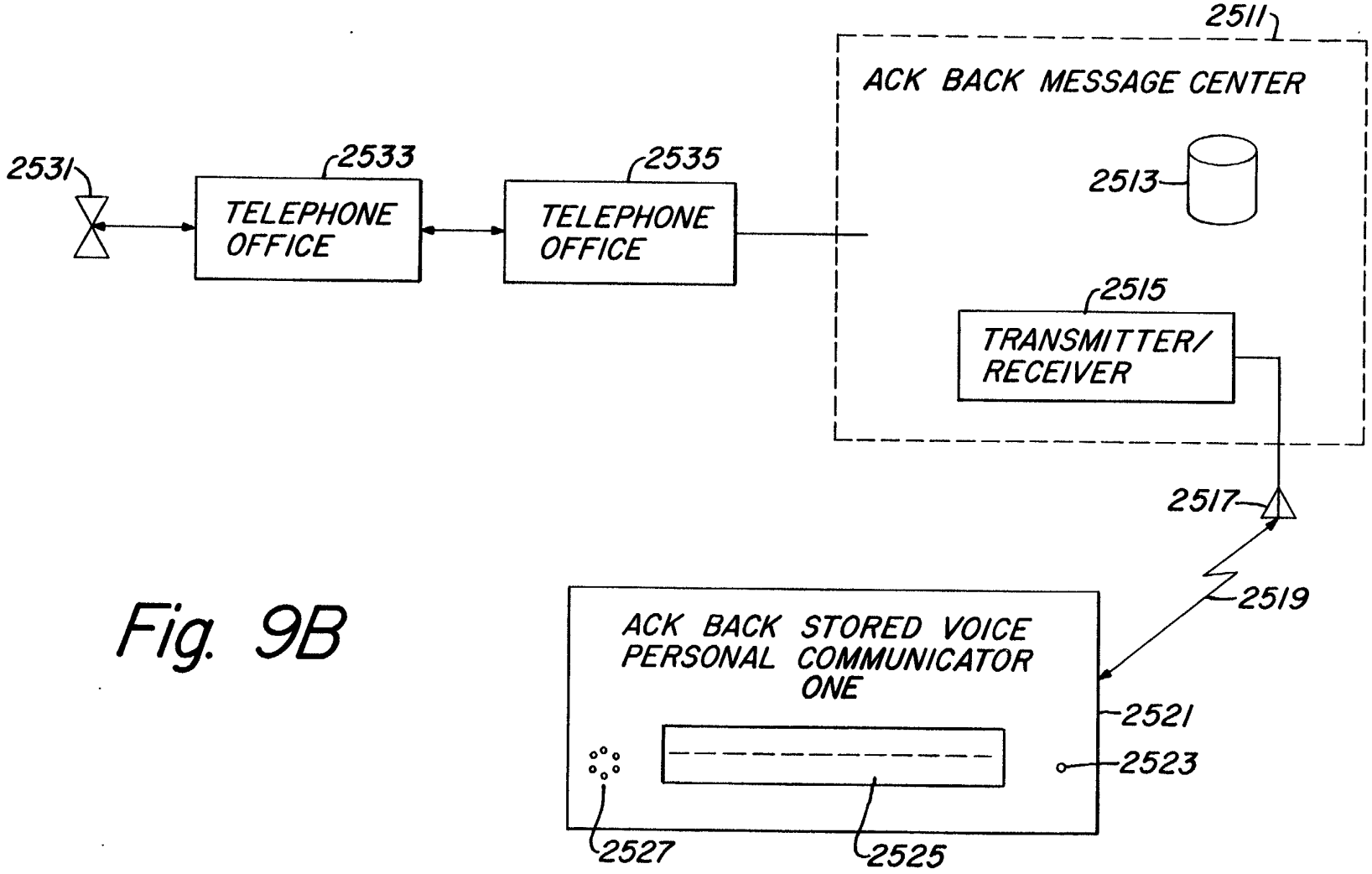

2511
ACK BACK MESSAGE CENTER
2513
2515
TRANSMITTER/
RECEIVER
2517
2519
2531
2533
TELEPHONE
OFFICE
2535
TELEPHONE
OFFICE
ACK BACK STORED VOICE
PERSONAL COMMUNICATOR
ONE
2521
2523
2525
2527

Fig. 9B

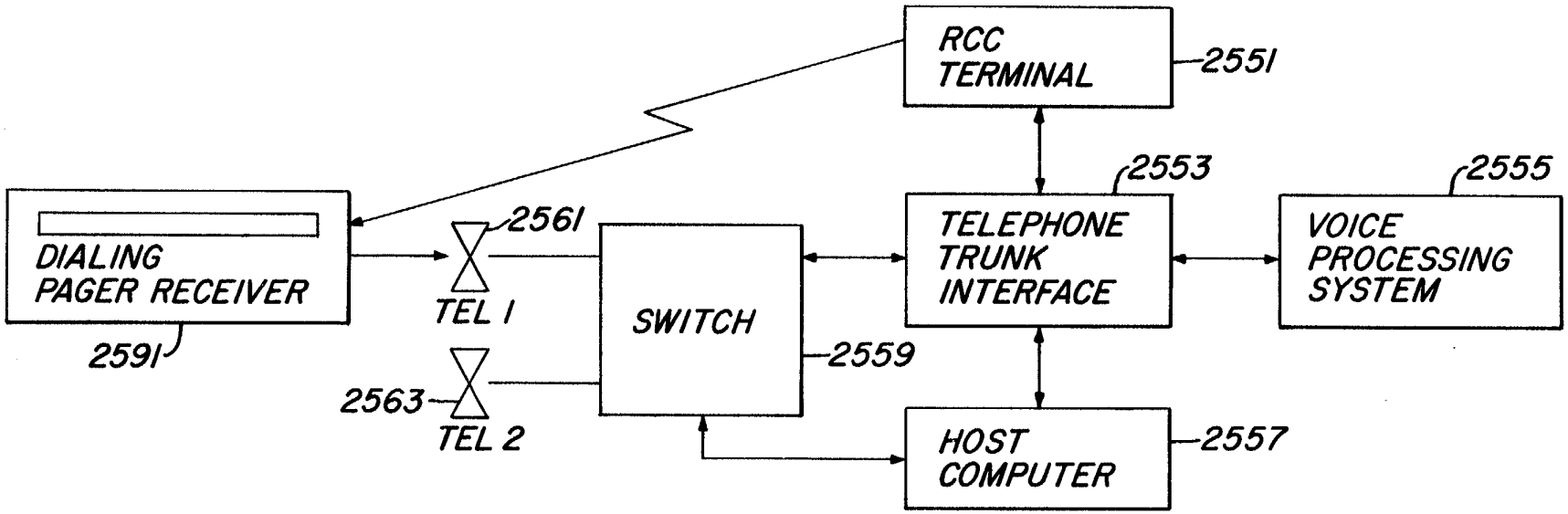

RCC
TERMINAL
2551
2553
2555
DIALING
PAGER RECEIVER
2591
2561
TEL 1
SWITCH
2559
TELEPHONE
TRUNK
INTERFACE
VOICE
PROCESSING
SYSTEM
2563
TEL 2
HOST
COMPUTER
2557

Fig. 10

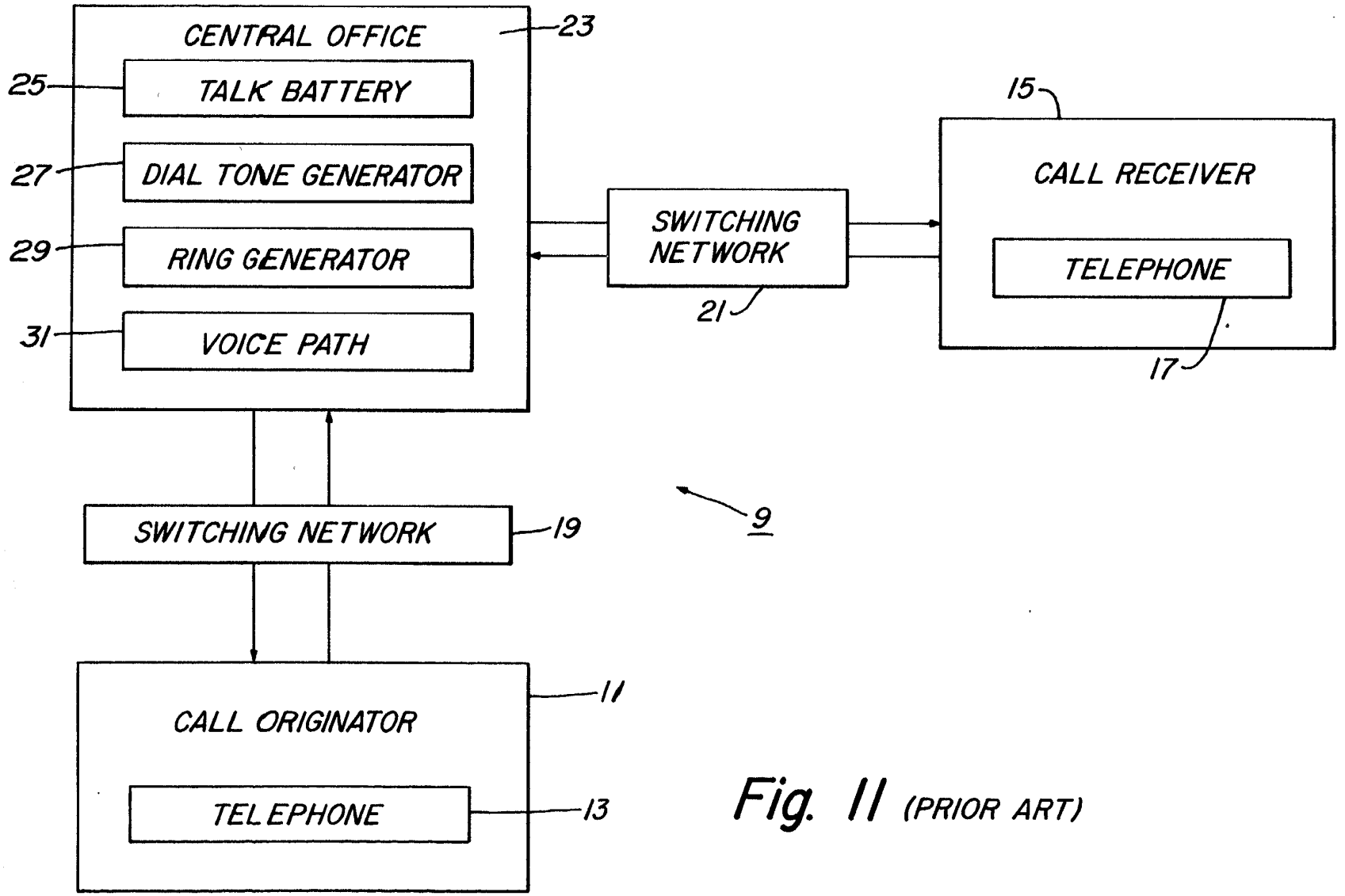
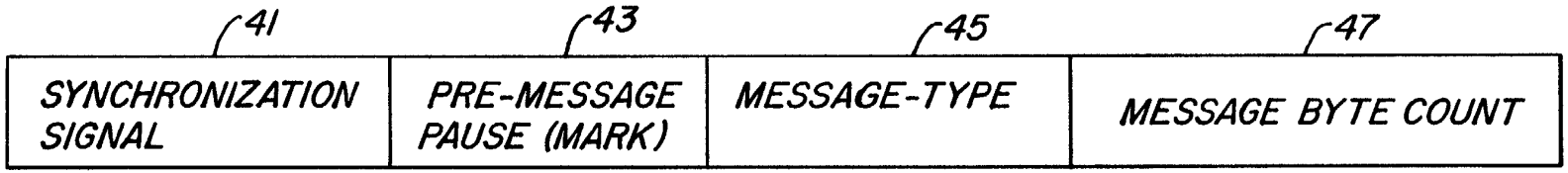


Fig. 11 (PRIOR ART)

Fig. 12A (PRIOR ART)



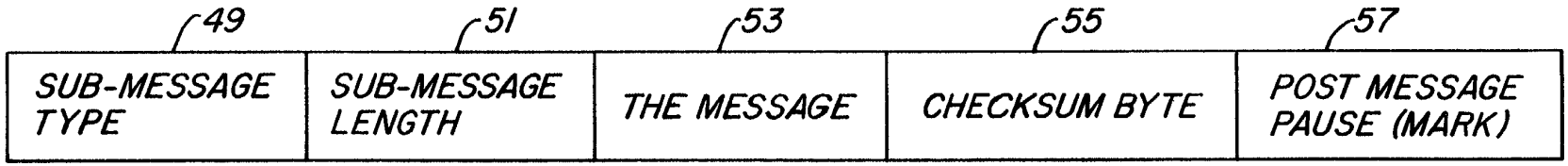


Fig. 12B (PRIOR ART)

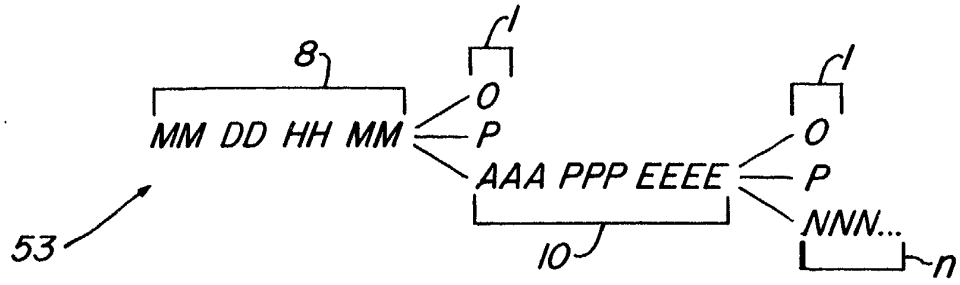


Fig. 12C (PRIOR ART)

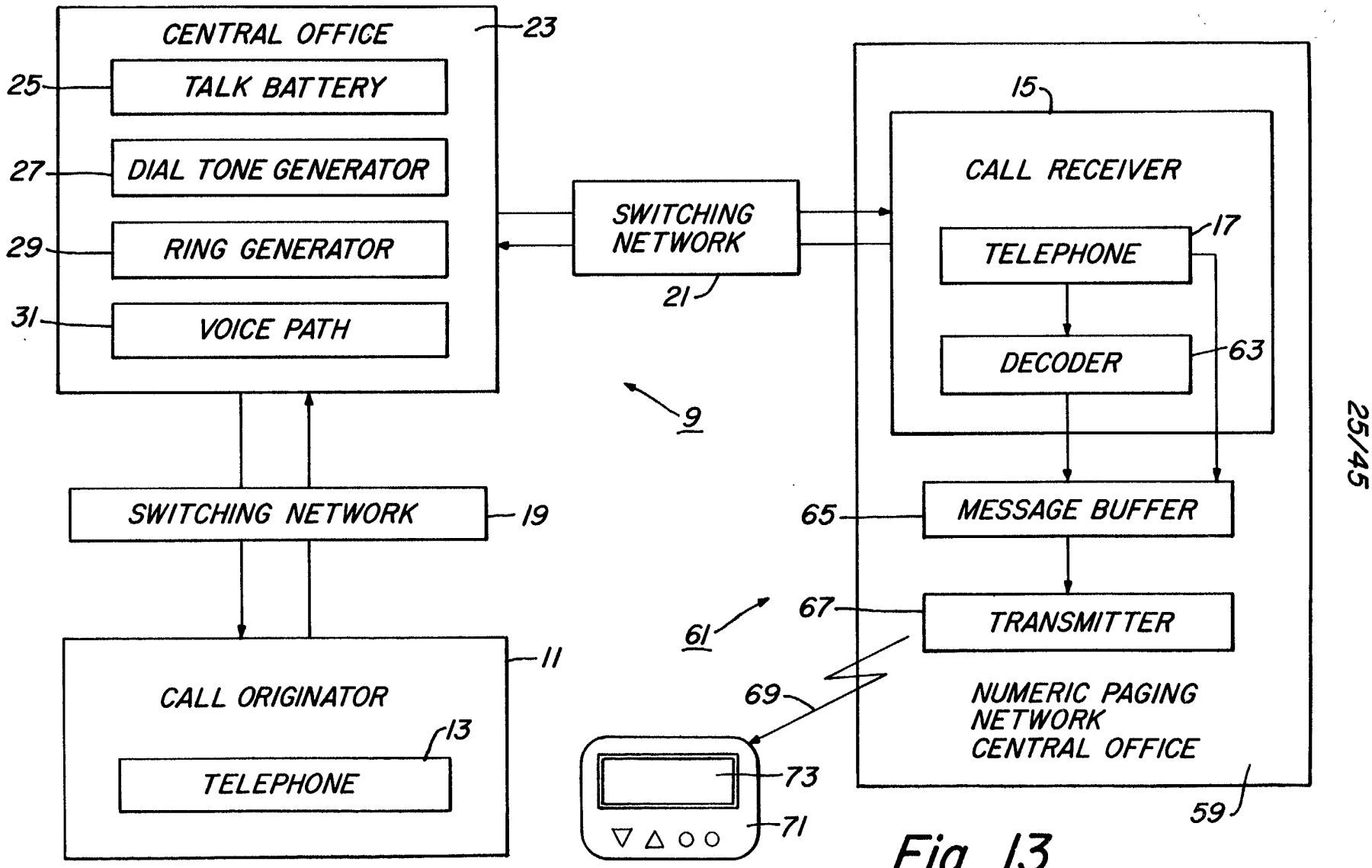

CENTRAL OFFICE
23
25
TALK BATTERY
27
DIAL TONE GENERATOR
29
RING GENERATOR
31
VOICE PATH
SWITCHING NETWORK
21
15
CALL RECEIVER
TELEPHONE
17
DECODER
63
9
SWITCHING NETWORK
19
65
MESSAGE BUFFER
67
TRANSMITTER
61
69
NUMERIC PAGING NETWORK CENTRAL OFFICE
CALL ORIGINATOR
11
13
TELEPHONE
73
71
59
25/45

Fig. 13

2052290 T6T24001

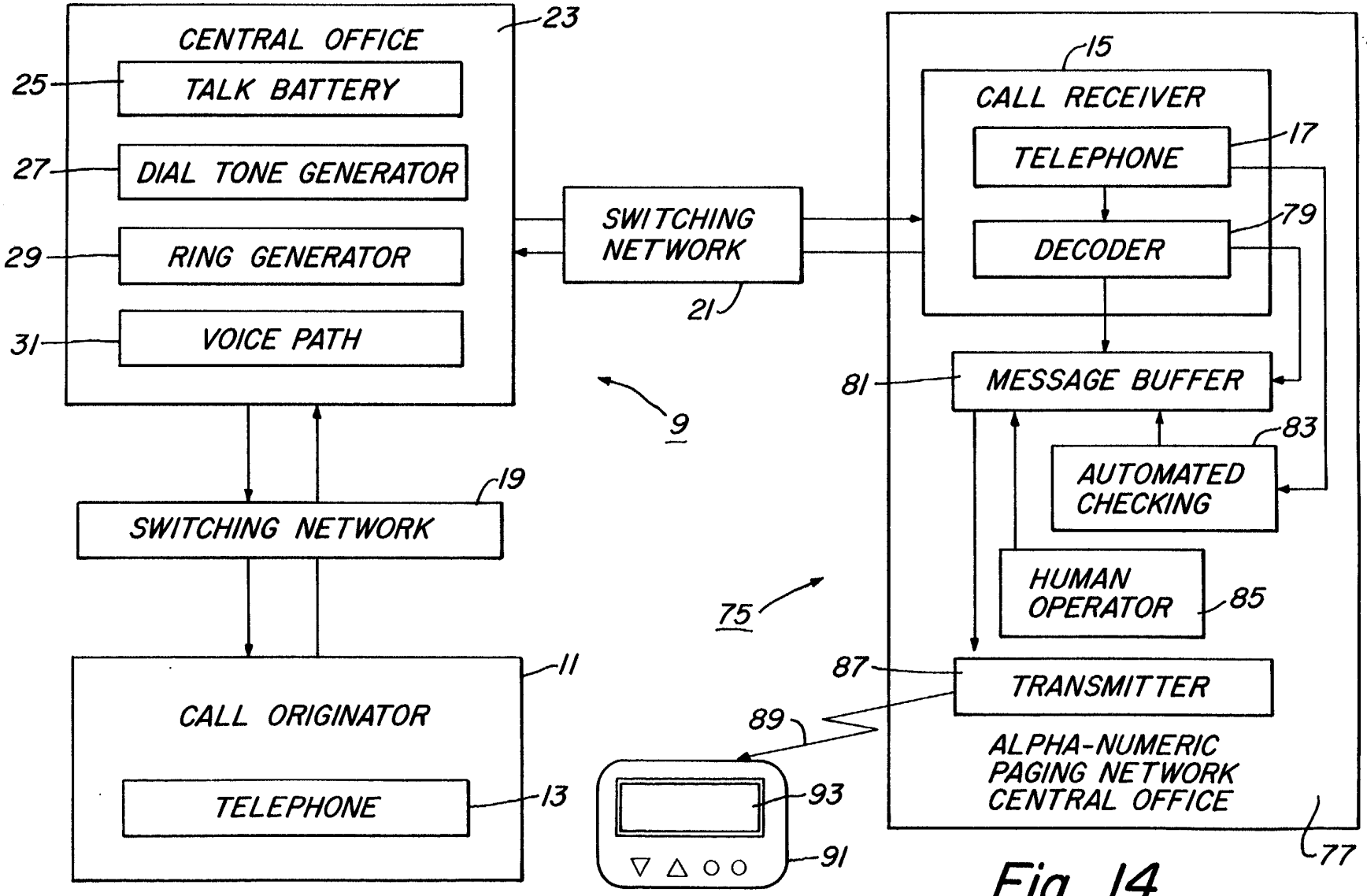


Fig. 14

MESSAGE CODE NO.	TEXTUAL MESSAGE
*1	CALL WHEN YOU RETURN
*2	VOICE MAIL RECEIVED
*3	FAX MAIL RECEIVED
*4	ELECTRONIC MAIL RECEIVED
*5	IMAGE DATA RECEIVED
*6	OTHER DATA RECEIVED
*911	CALL IMMEDIATELY
.	
.	
.	

Fig. 15

2052290 "T6T7h00T

	CALLER LOCATION DATA (NUMERIC CALLER ID DATA FROM TEL. CO.)	CALLER IDENTIFICATION DATA (DTMF ENTRY BY CALLER)	CALLER MESSAGE CODE (DTMF ENTRY)
1			
2	NNNN...	ABC...	NN
	MMMMM...	DEF	MM
49	XXXX...	LMN...	ZI...
50	KKKK...	WXY...	02

Fig. 16

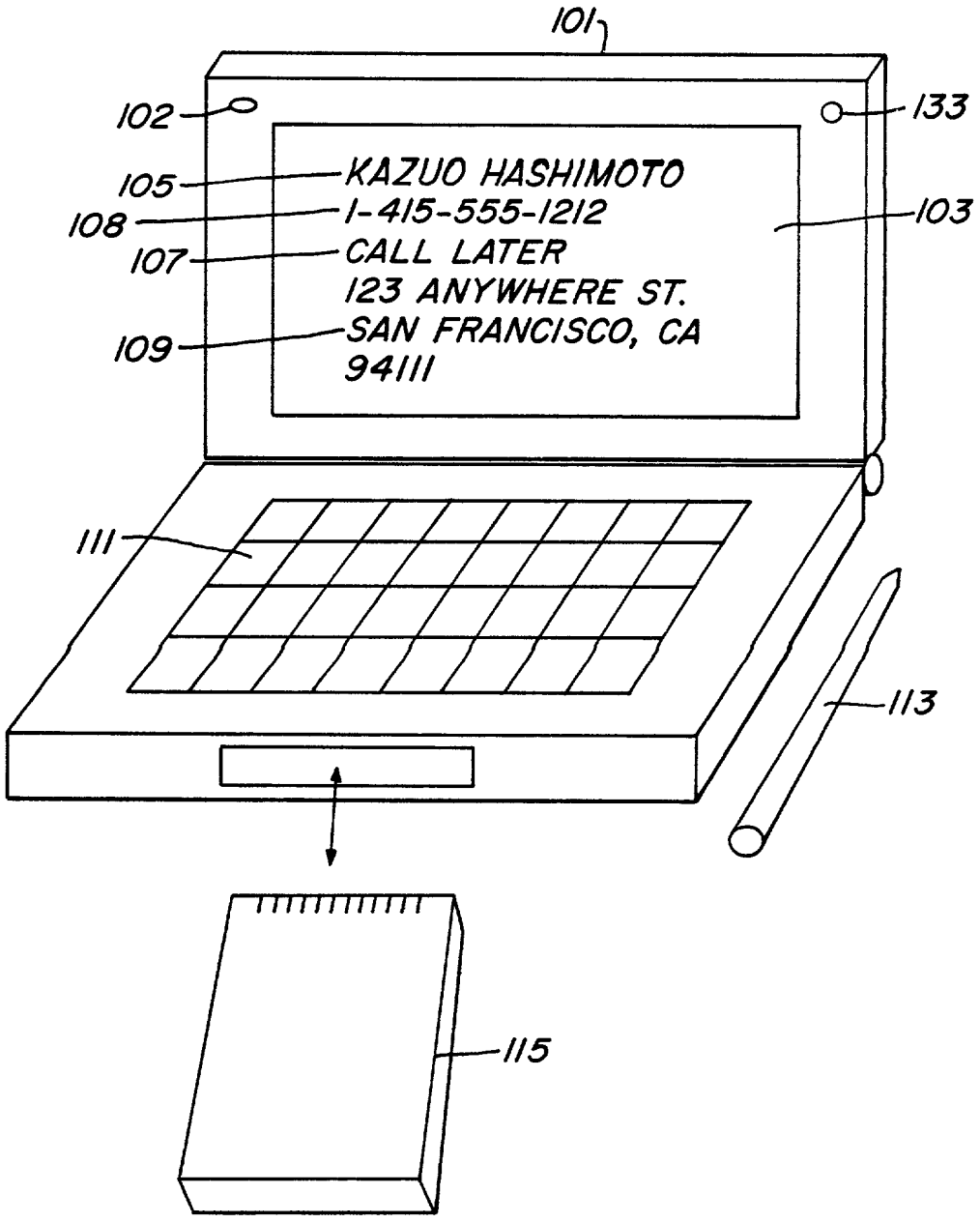

101
102
133
105
KAZUO HASHIMOTO
108
1-415-555-1212
103
107
CALL LATER
123 ANYWHERE ST.
109
SAN FRANCISCO, CA
94111
111
113
115

Fig. 17

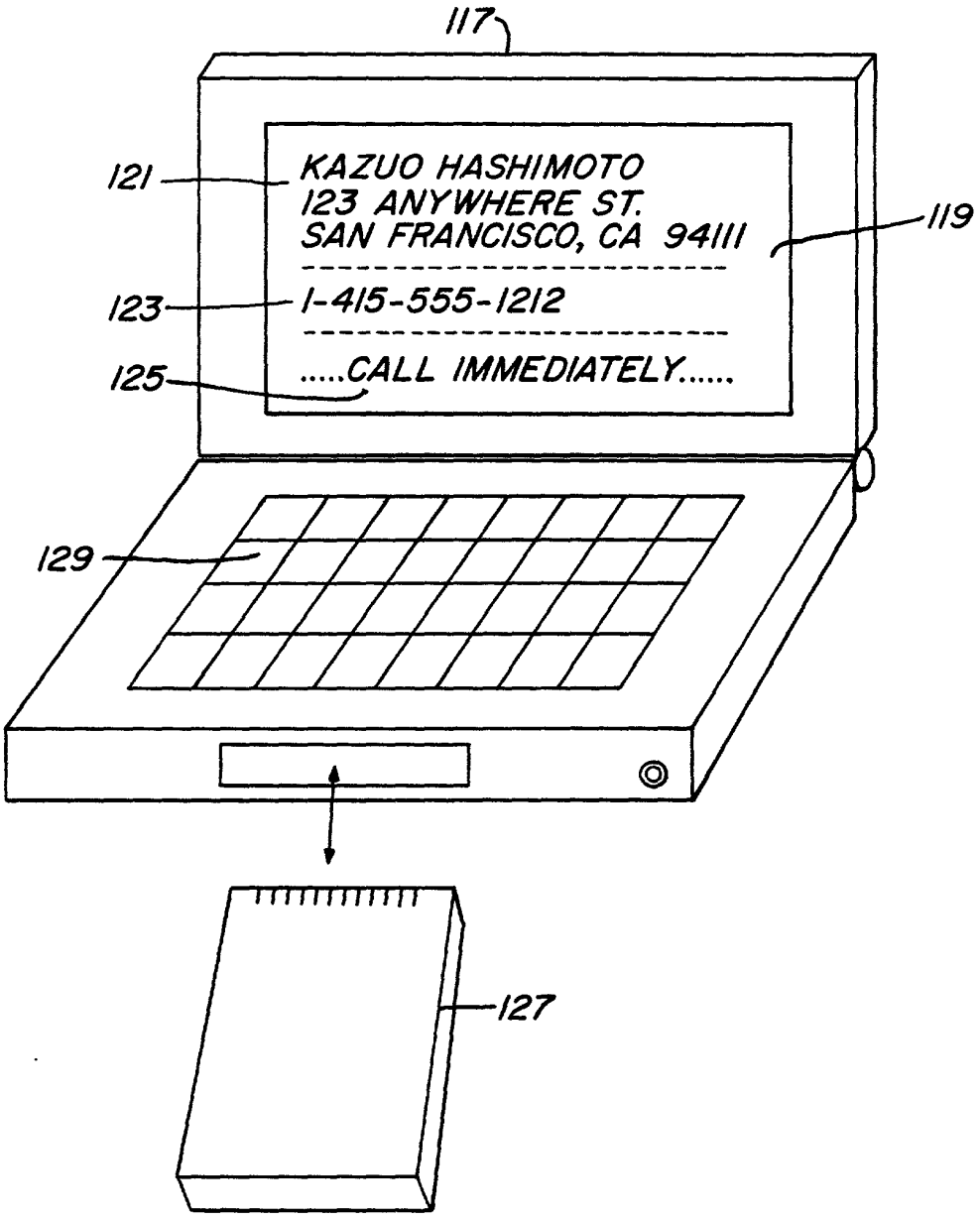

117
121
KAZUO HASHIMOTO
123 ANYWHERE ST.
SAN FRANCISCO, CA 94111
119
123
1-415-555-1212
125
.....CALL IMMEDIATELY.....
129
127

Fig. 18

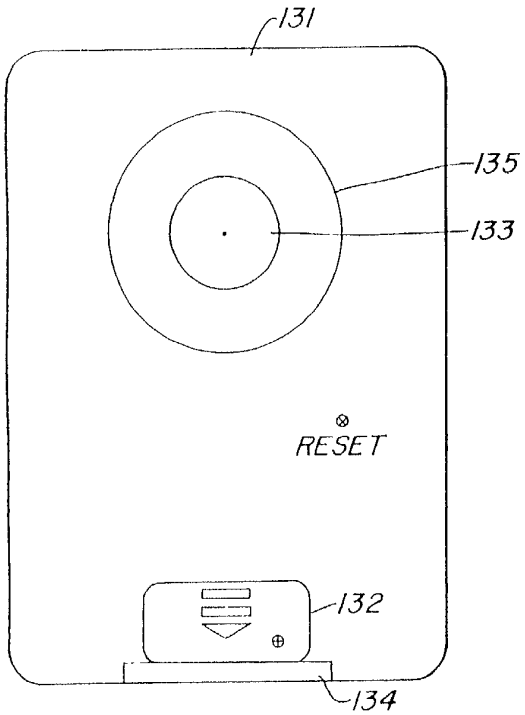


Fig. 19A

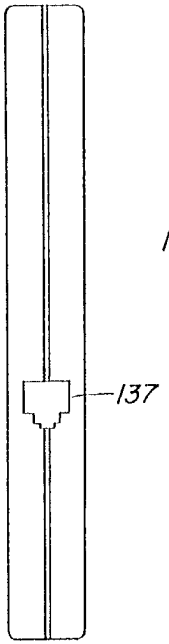


Fig. 19B

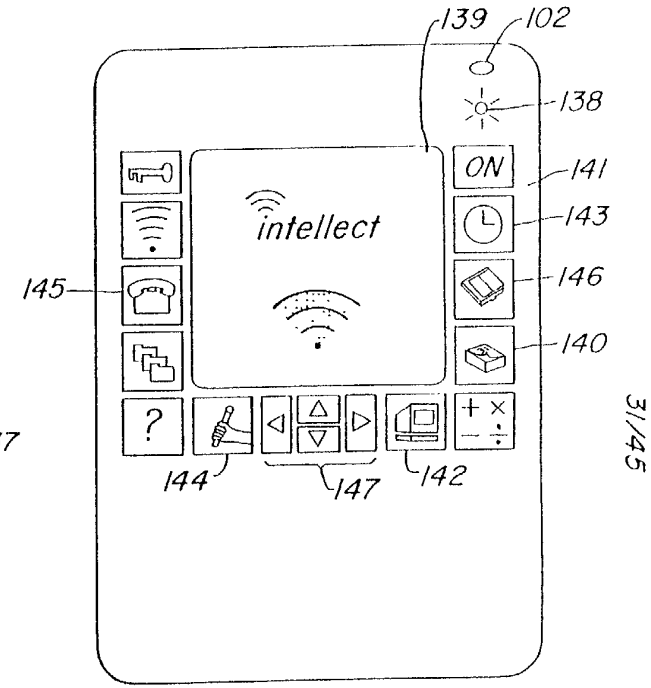


Fig. 19C

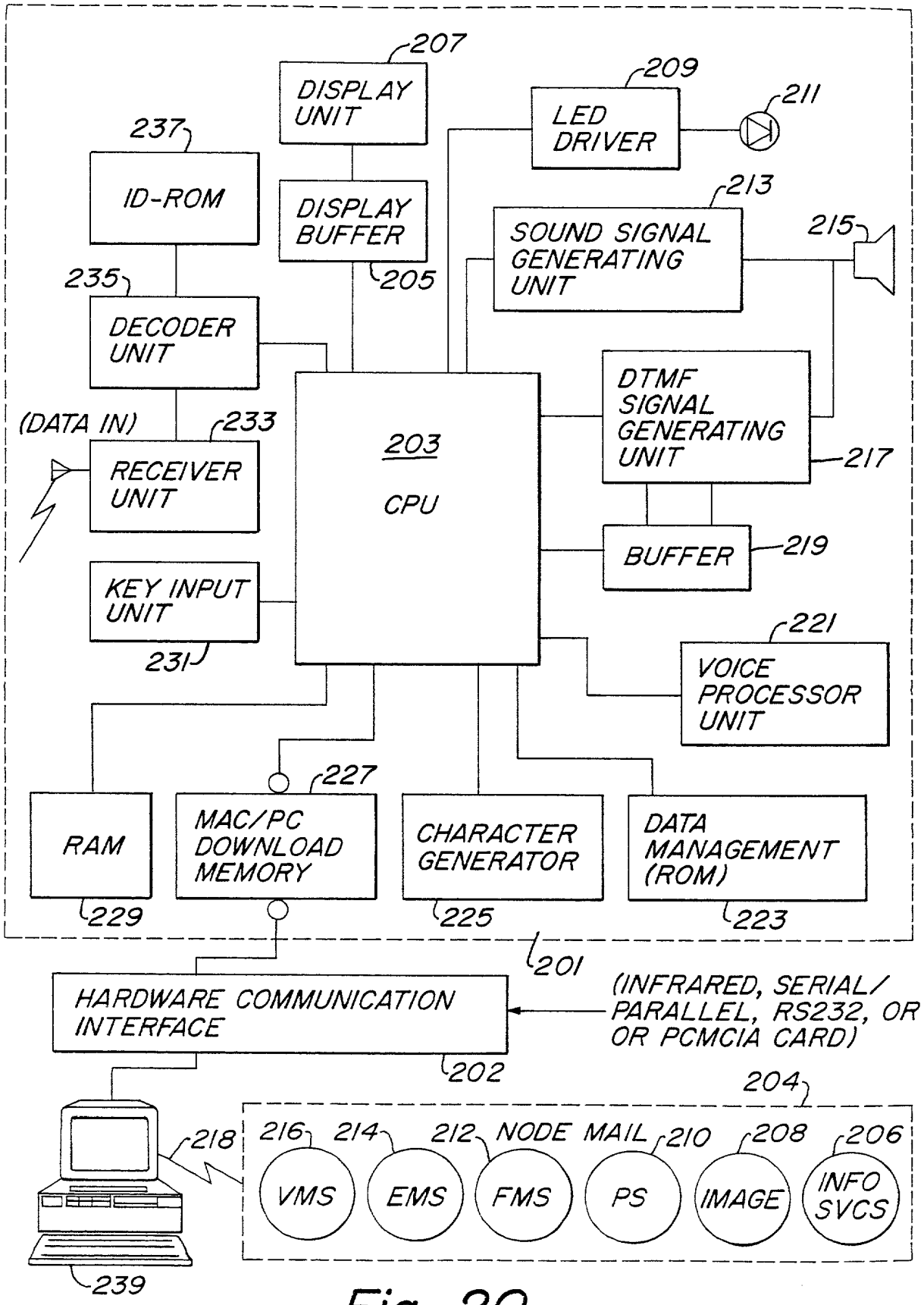

207
DISPLAY UNIT
209
LED DRIVER
211
237
ID-ROM
DISPLAY BUFFER
213
SOUND SIGNAL GENERATING UNIT
215
205
235
DECODER UNIT
DTMF SIGNAL GENERATING UNIT
217
(DATA IN)
233
203
CPU
RECEIVER UNIT
BUFFER
219
KEY INPUT UNIT
231
221
VOICE PROCESSOR UNIT
227
RAM
MAC/PC DOWNLOAD MEMORY
CHARACTER GENERATOR
DATA MANAGEMENT (ROM)
229
225
223
201
HARDWARE COMMUNICATION INTERFACE
(INFRARED, SERIAL/ PARALLEL, RS232, OR OR PCMCIA CARD)
202
204
218
216
214
212
NODE MAIL
210
208
206
VMS
EMS
FMS
PS
IMAGE
INFO SVCS
239

Fig. 20

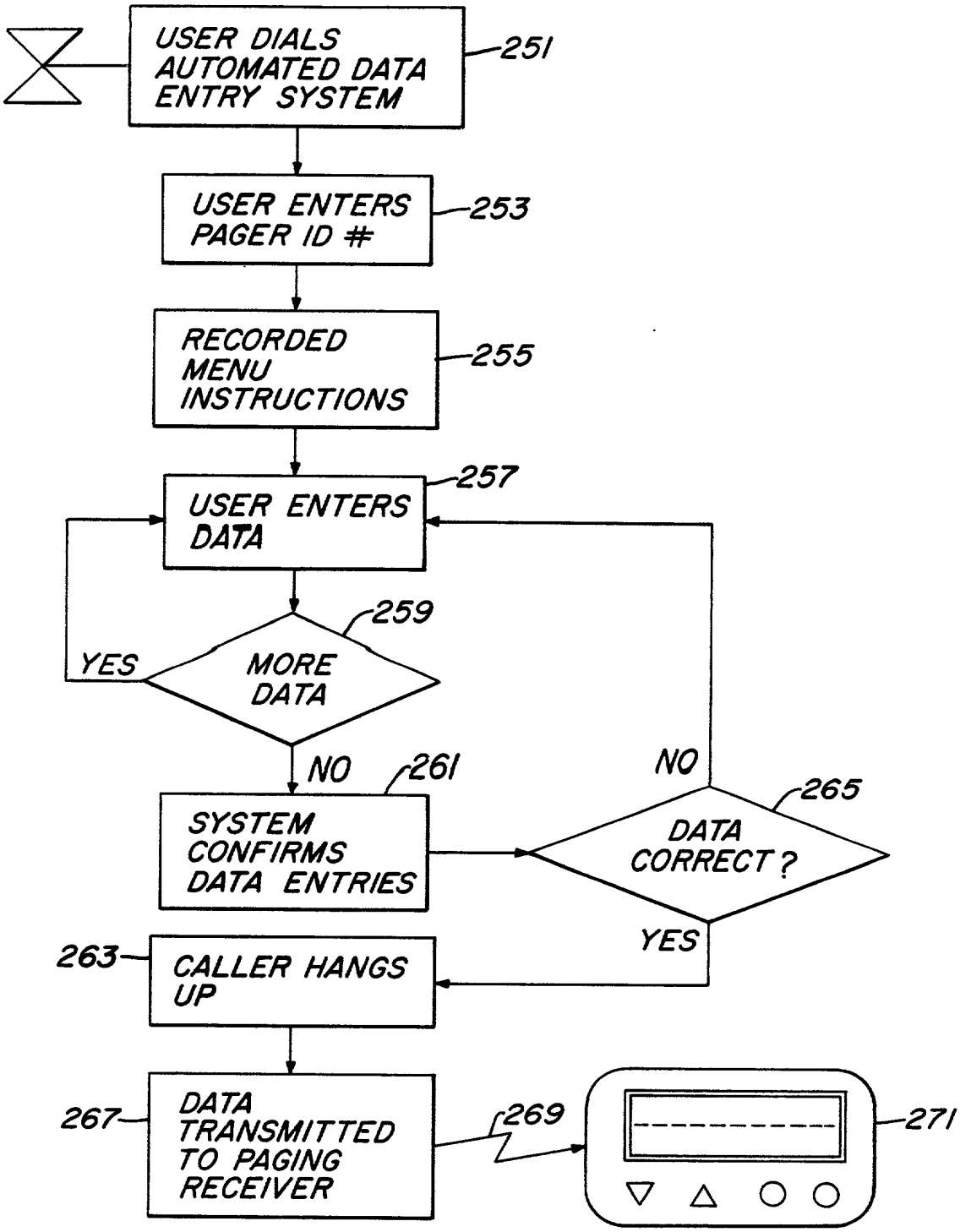

USER DIALS AUTOMATED DATA ENTRY SYSTEM
251
USER ENTERS PAGER ID #
253
RECORDED MENU INSTRUCTIONS
255
USER ENTERS DATA
257
MORE DATA
259
YES
NO
SYSTEM CONFIRMS DATA ENTRIES
261
DATA CORRECT ?
265
NO
YES
CALLER HANGS UP
263
DATA TRANSMITTED TO PAGING RECEIVER
267
269
271

Fig. 21

TEL. NO.	FAX NO.	NAME	OTHER DATA	NT
1-415-555-1212 1-503-777-8889 1-415-541-0500	1-415-555-2121 1-503-777-8889 1-510-444-1212	KAZUO HASHIMOTO ABC COMPANY ZYZ INC.	123 ANYWHERE ST., SAN FRANCISCO, CA 1 TEST PLAZA, PORTLAND, OR 8 WAY, SAN FRANCISCO, CA	VI BL T

Fig. 22

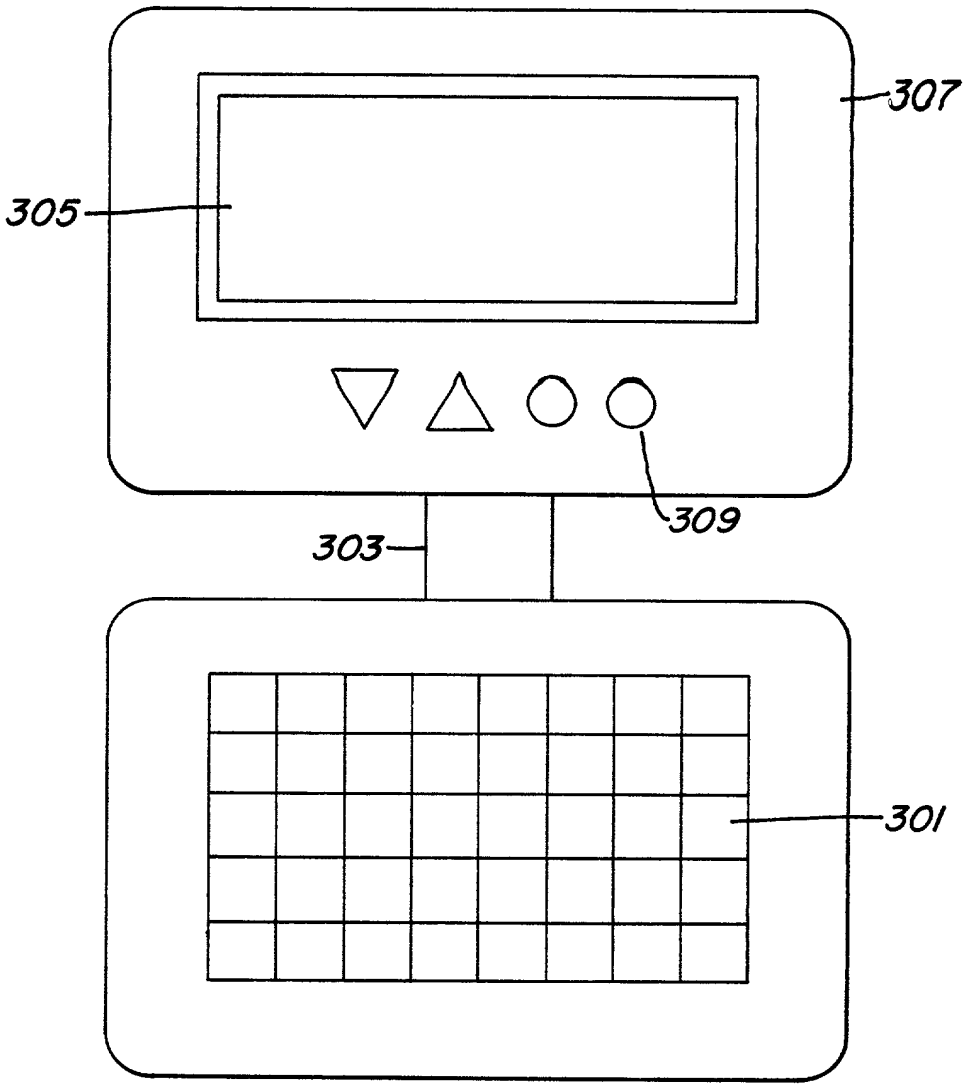


Fig. 23

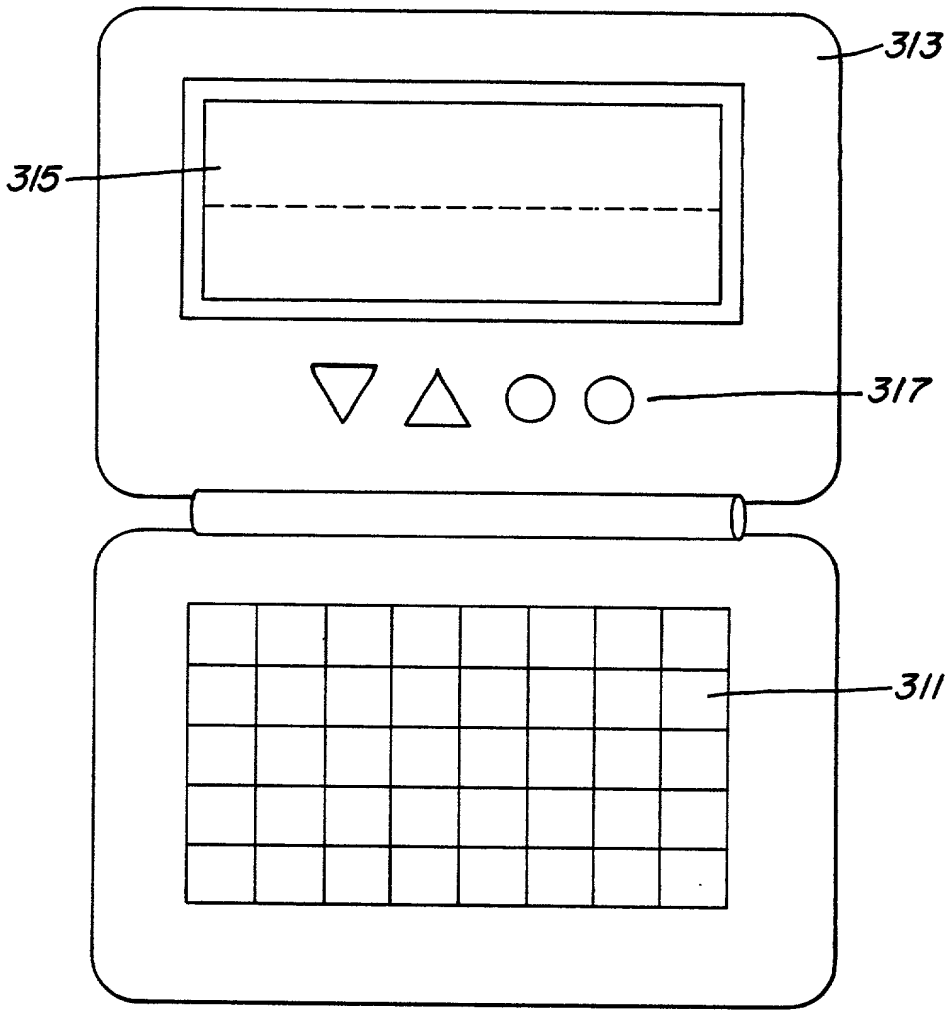


Fig. 24

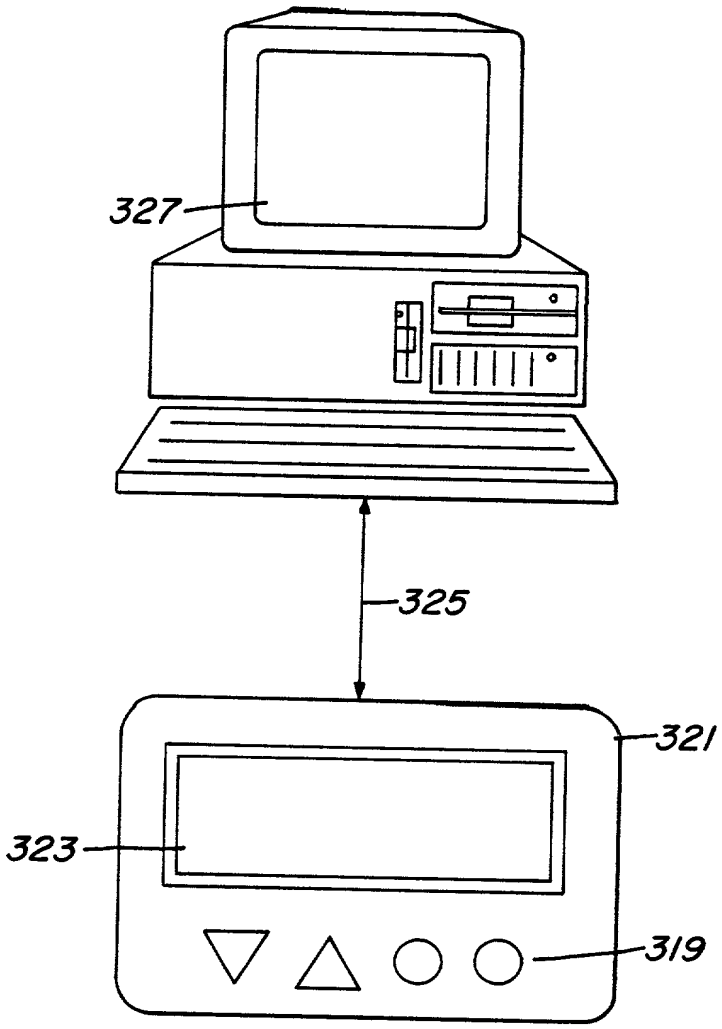


Fig. 25

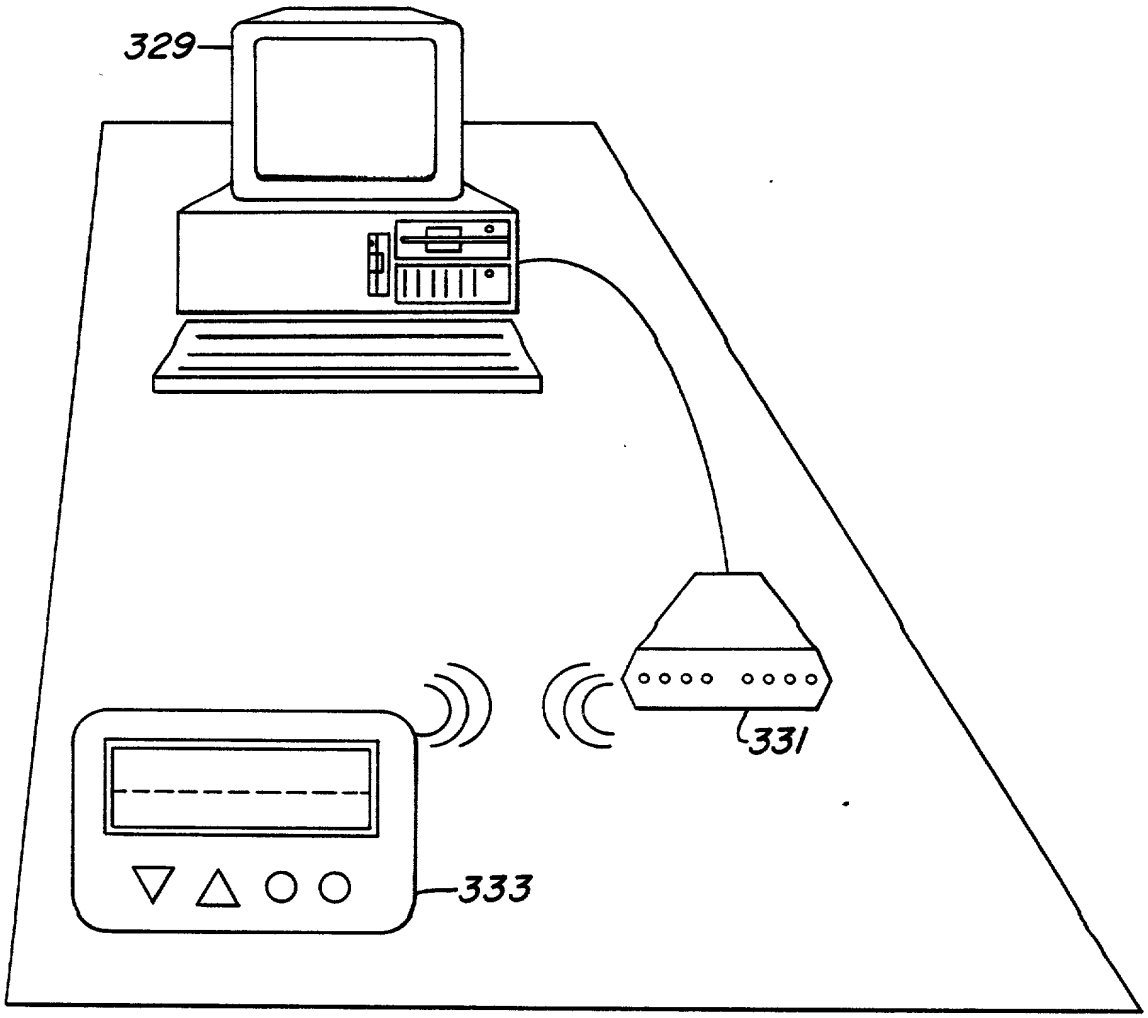


Fig. 26

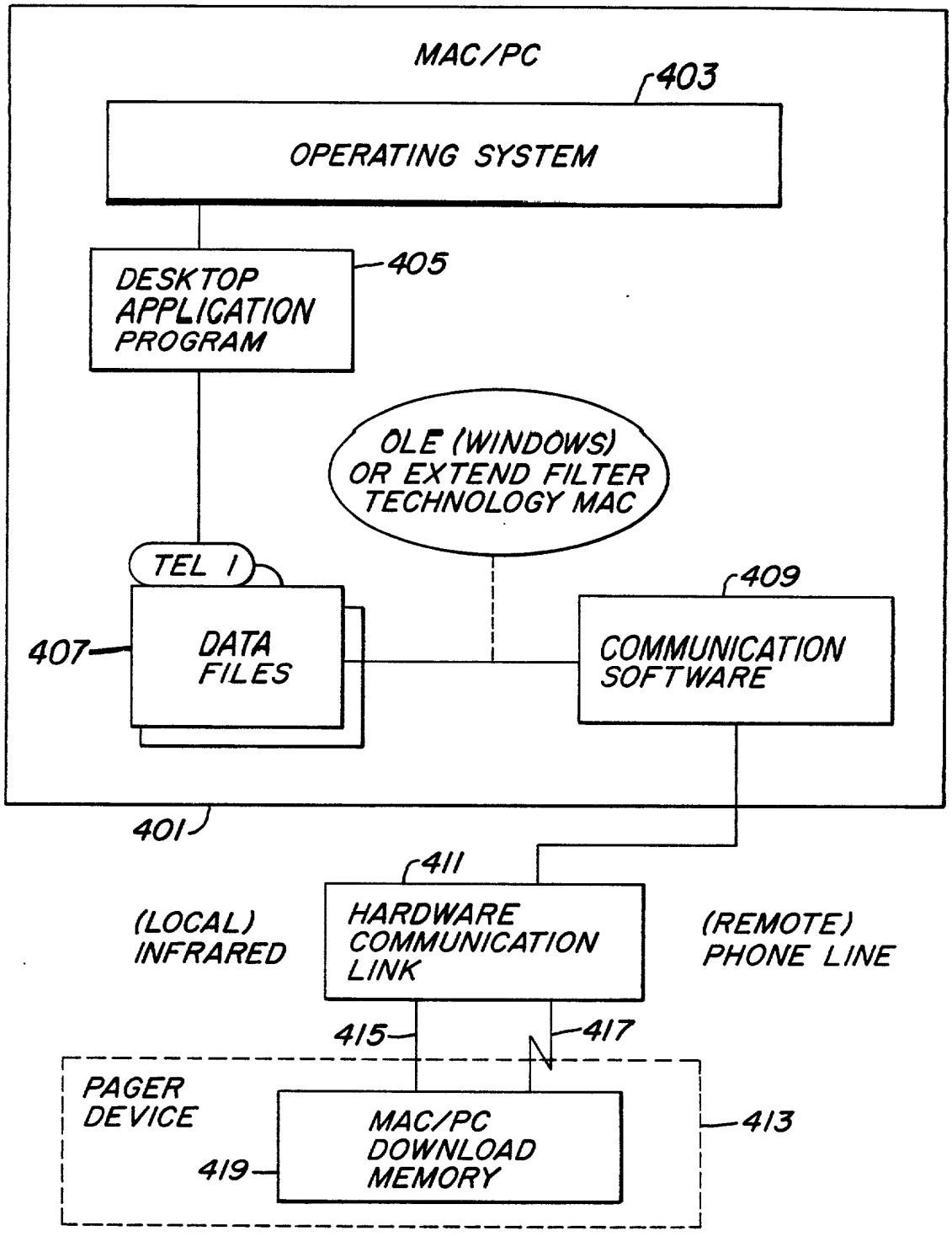

MAC/PC
403
OPERATING SYSTEM
DESKTOP APPLICATION PROGRAM
405
OLE (WINDOWS) OR EXTEND FILTER TECHNOLOGY MAC
TEL 1
409
407
DATA FILES
COMMUNICATION SOFTWARE
401
411
(LOCAL) INFRARED
HARDWARE COMMUNICATION LINK
(REMOTE) PHONE LINE
415
417
PAGER DEVICE
MAC/PC DOWNLOAD MEMORY
413
419

Fig. 27

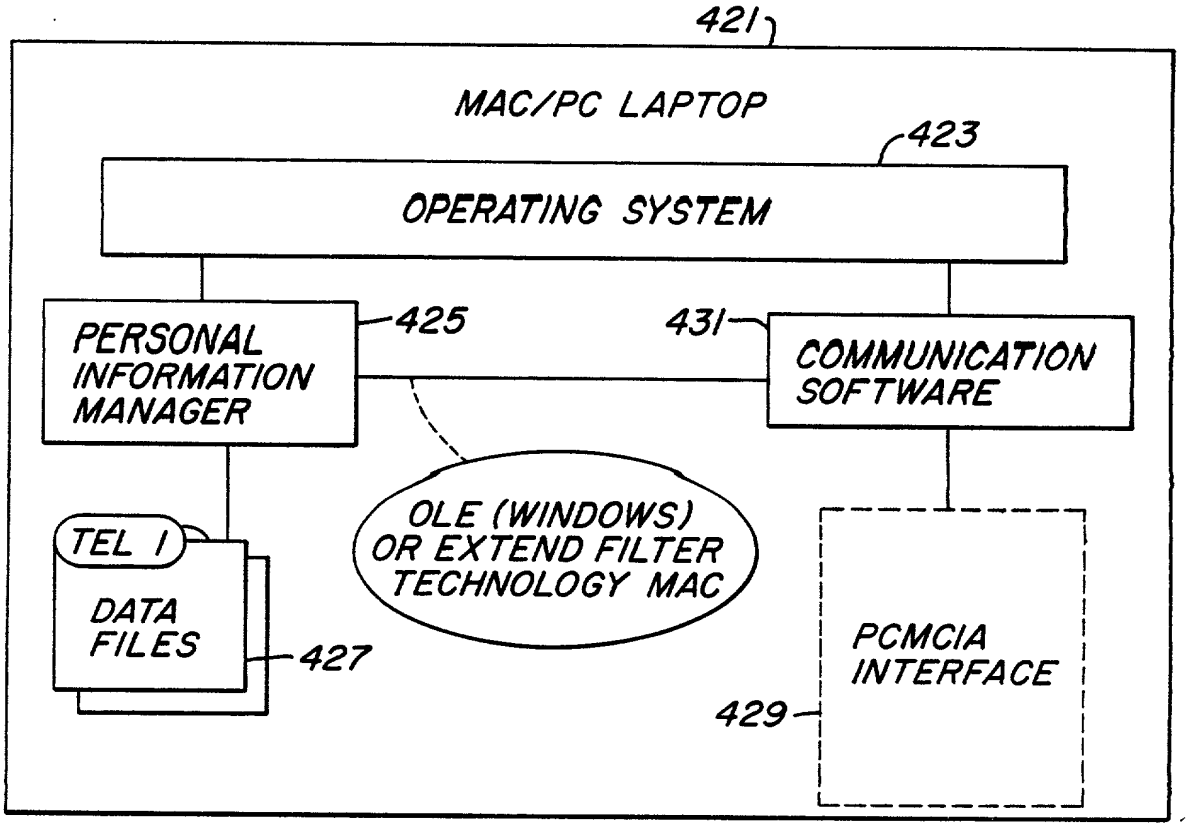
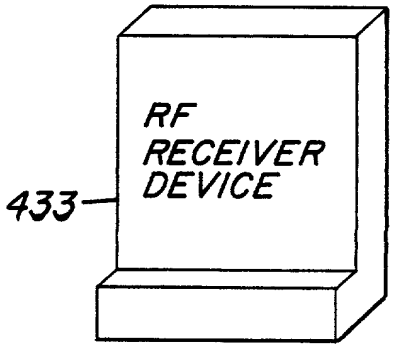

421
MAC/PC LAPTOP
423
OPERATING SYSTEM
PERSONAL INFORMATION MANAGER
425
431
COMMUNICATION SOFTWARE
TEL I
DATA FILES
427
OLE (WINDOWS) OR EXTEND FILTER TECHNOLOGY MAC
PCMCIA INTERFACE
429

Fig. 28


RF RECEIVER DEVICE
433

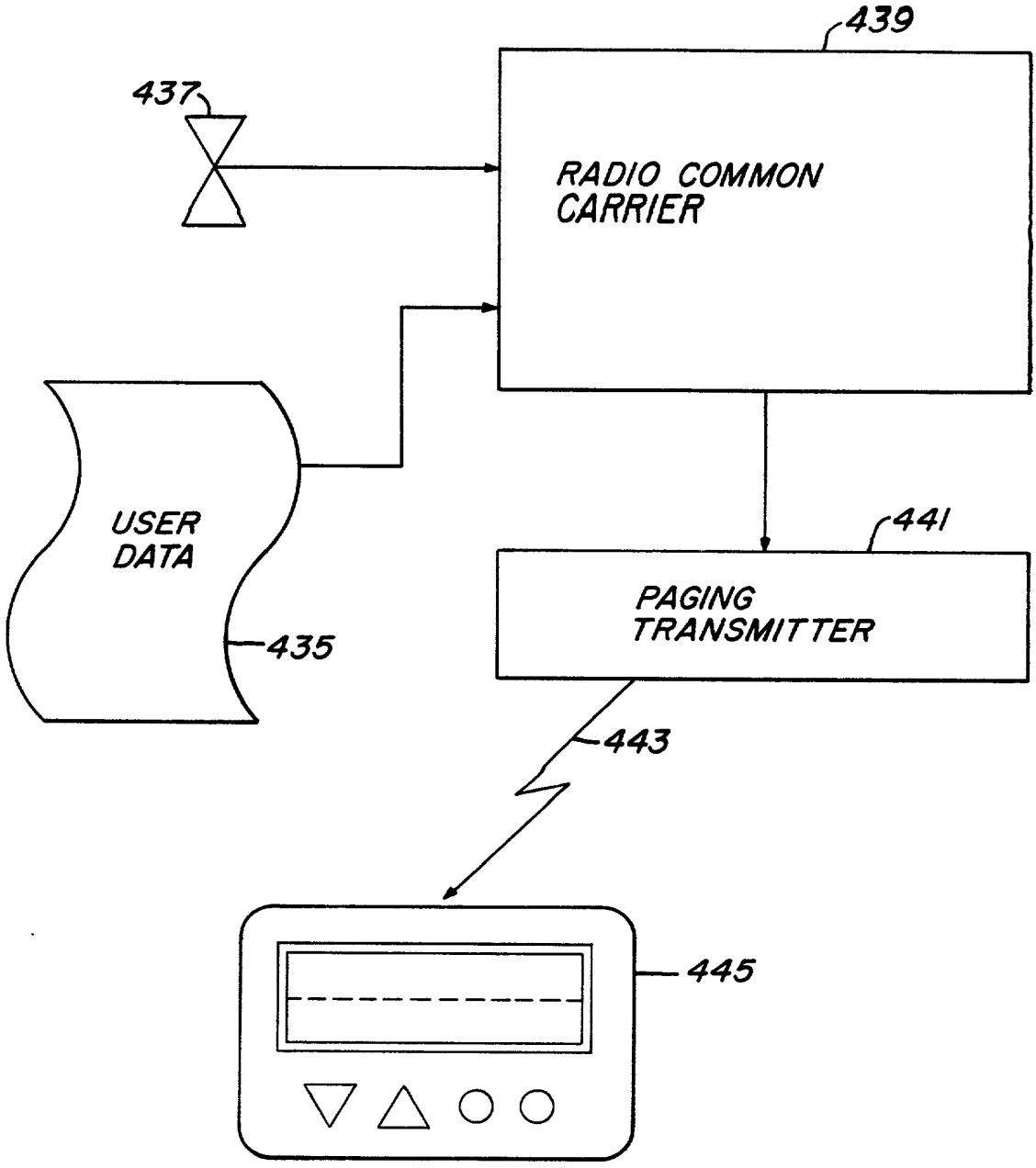

439
437
RADIO COMMON CARRIER
USER DATA
435
441
PAGING TRANSMITTER
443
445

Fig. 29

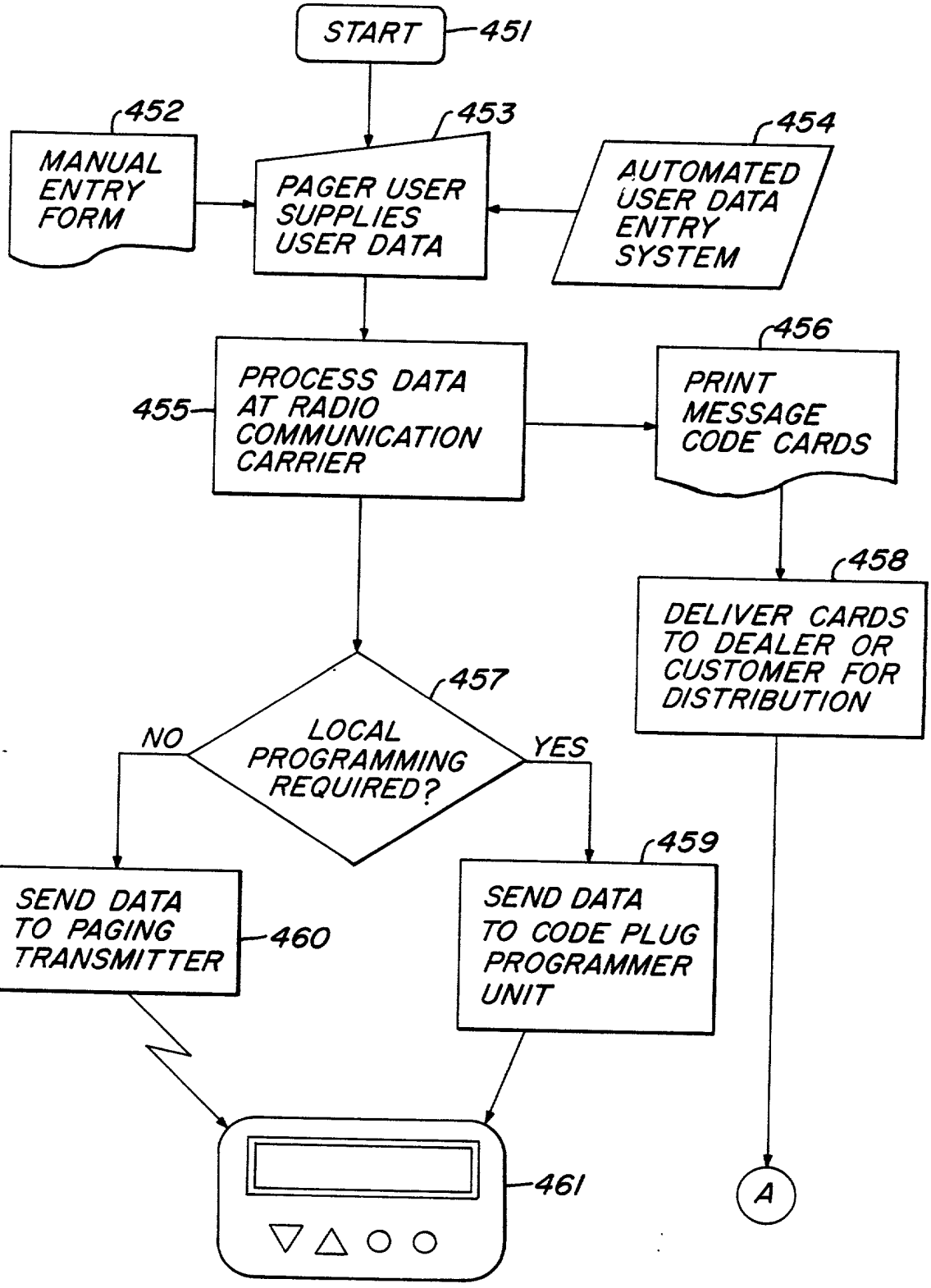

START
451
452
MANUAL ENTRY FORM
453
PAGER USER SUPPLIES USER DATA
454
AUTOMATED USER DATA ENTRY SYSTEM
455
PROCESS DATA AT RADIO COMMUNICATION CARRIER
456
PRINT MESSAGE CODE CARDS
458
DELIVER CARDS TO DEALER OR CUSTOMER FOR DISTRIBUTION
457
LOCAL PROGRAMMING REQUIRED?
NO
YES
459
SEND DATA TO CODE PLUG PROGRAMMER UNIT
SEND DATA TO PAGING TRANSMITTER
460
461
A

Fig. 30

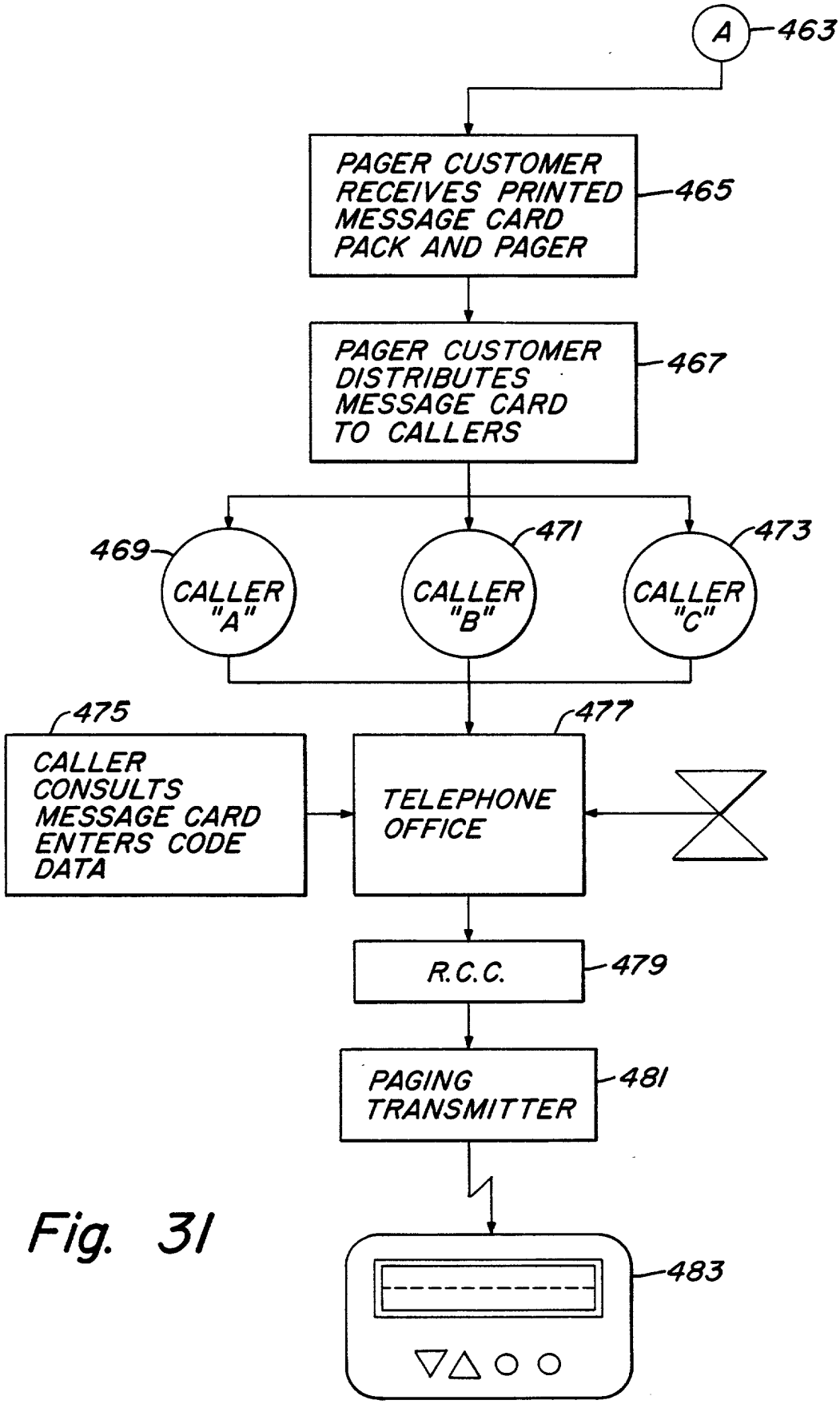

A
463
PAGER CUSTOMER RECEIVES PRINTED MESSAGE CARD PACK AND PAGER
465
PAGER CUSTOMER DISTRIBUTES MESSAGE CARD TO CALLERS
467
469
CALLER "A"
471
CALLER "B"
473
CALLER "C"
475
CALLER CONSULTS MESSAGE CARD ENTERS CODE DATA
477
TELEPHONE OFFICE
R.C.C.
479
PAGING TRANSMITTER
481
483

Fig. 31

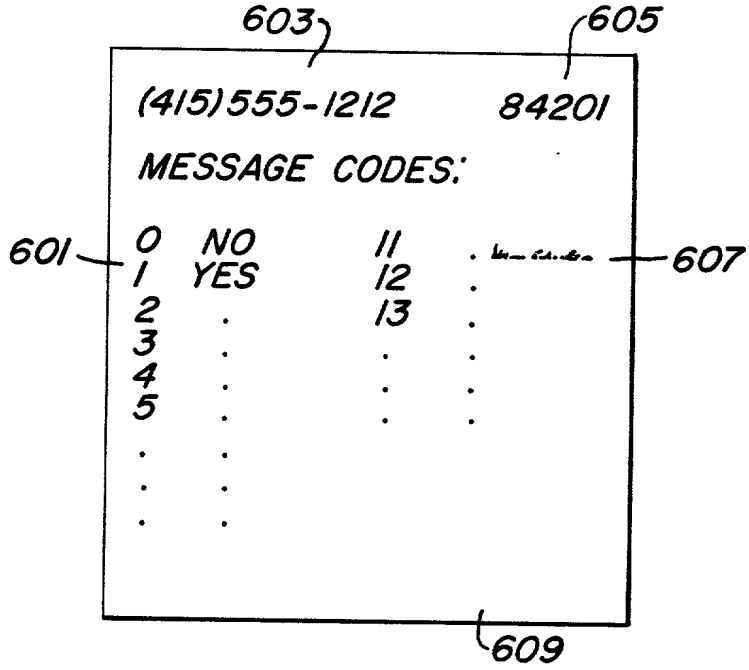

603
605
(415)555-1212
84201
MESSAGE CODES:
601
0 NO
1 YES
2
3
4
5
11
12
13
607
609

Fig. 32

MESSAGE CODE	(PLEASE PRINT)
11	PICK UP THE KIDS
12	
.	.
.	.
.	.
.	.
.	.
.	.
PHONE DATA	NAME DATA
5551212	JOHN SMITH
5551313	JOHN SMITH-FAX
.	.
.	.
.	.

611

613

615

Fig. 33